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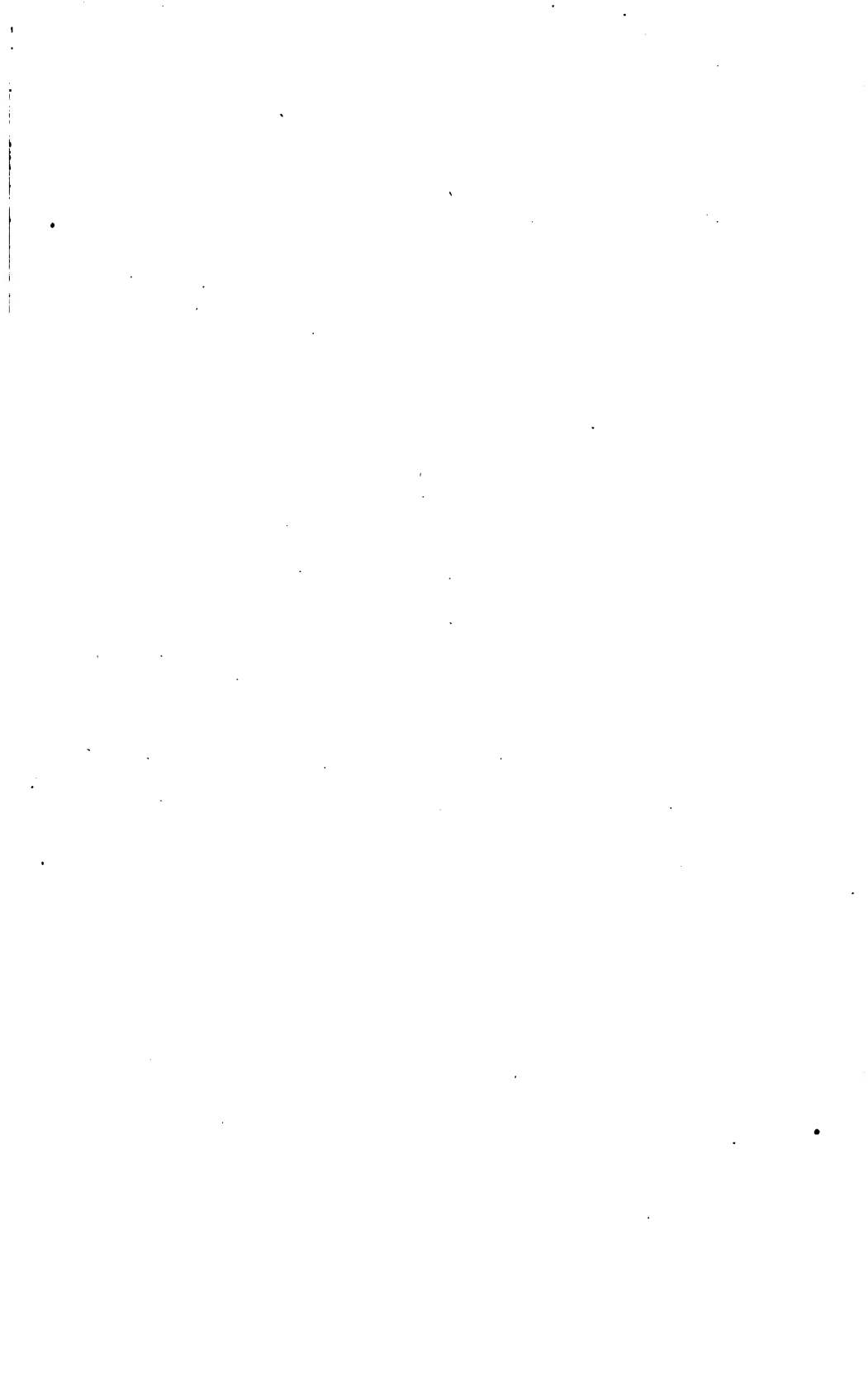
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ORIGINAL COMMUNICATIONS.

PERSONAL VIEWS ON THE SURGICAL TREATMENT OF
PERFORATED GASTRIC ULCER WITH GENERAL
INFECTION OF PERITONEAL CAVITY.

NOTES OF A SECOND SUCCESSFUL CASE.¹

BY

HENRY HOWITT, M.D., M.R.C.S. ENG.,
Guelph, Ontario.

THE surgical treatment of perforated gastric ulcer is too comprehensive a subject to be covered adequately in the time allowed by our Association for reading a paper. I have therefore deemed it advisable to confine my remarks as closely as circumstances permit to that particular variety of perforation in which, owing to its size, the absence of sufficient protection by adhesions, and the nature of contents of stomach, the whole peritoneal cavity becomes infected rapidly. This condition is caused generally, though not invariably, by the acute round ulcer. It may occur in the chronic ulcer, especially when it is situated on the ever-moving anterior wall of the organ, and doubtless in other situations when certain pathological conditions exist which prohibit the formation of a guard.

¹ Read at the meeting of the American Association of Obstetricians and Gynecologists, Washington, D. C., September 16, 17, and 18, 1902.

All the phenomena of acute perforation with rapid infection of peritoneal cavity may result, in a more indirect manner, in either form of gastric ulcer; for occasionally, before an ulcer of the stomach or other portion of intestinal tract destroys the peritoneal coat, local peritonitis precedes the event and attaches the threatened part to omentum or other adjacent structure, so that, when it is cut through, no escape takes place and hence no shock nor other symptom to indicate what has occurred.

Surgical literature and the records of postmortem rooms afford numerous and not rarely amazing illustrations of this wonderful provision of Nature, which often mitigates the immediate result and even at times leads to a perfect cure; but restoration in this manner is the exception and not the rule. The contents of the stomach are seldom, if ever, aseptic; therefore, under these circumstances, a local abscess is apt to form which may enlarge, rupture internally, and give rise to the same train of symptoms that we have in an unprotected one.

The symptoms which precede perforation of the stomach wall vary very widely indeed. There may be, previously to the event, a complete history, of greater or less duration, pointing to the trouble; while, on the other hand, the catastrophe may occur suddenly in a person apparently in excellent health, without a single symptom to indicate anything abnormal. The symptoms, for reasons that appear obvious, are probably more frequently wanting when the ulcer is situated away from the pylorus and near the lesser curvature; and especially is this likely to be true when the anterior wall is the affected part. According to Mayo Robson, they are absent in 8 per cent of the cases, but there is reason to believe that the actual percentage is somewhat higher.

In the particular class of gastric perforation under discussion the whole abdominal and pelvic cavities become quickly infected. The onset is announced suddenly by excruciating pain in the epigastrium, which the patient often describes as being of a burning and tearing character. All the symptoms of profound shock follow immediately. The surface of the body becomes pale, cold, clammy, and often has a bluish tinge; respiration is hurried, superficial, and, as regards movement, thoracic. The pulse at the commencement, according to my experience, is not greatly accelerated, may even be slower than normal, but, after a varying period, gradually becomes rapid, thready, and almost imperceptible at wrist, and the temperature is subnormal. The abdominal muscles are fixed, rigid, and extremely painful to

touch, and the expression of face and general aspect of patient indicate overwhelming agony. The slightest exertion aggravates suffering; there is a dread of being disturbed, and even questions are generally answered in a slow, labored, whispering tone. The shock may cause death at times with astonishing suddenness. The absence of liver dulness is not a reliable sign in the early stage, nor is vomiting.

It is admitted that shock may be fairly well pronounced when the trouble is localized by adhesions to the epigastric region. Then how is it possible to ascertain in a particular case whether or not general infection of the abdomen is a factor? According to my experience, the diagnostication between the two forms is not difficult, although at the commencement the symptoms, except as regards severity, are often identical. In both forms the situation of greatest pain and tenderness at onset is in the epigastric region, and in both at this period—when perforation is on the posterior wall—the pain tends to radiate into back in interscapular region; but in the form in which Nature's guard of limitation does not exist, the highly irritating material gravitates downward and the site of *most intense pain* follows it. The rapidity of the downward flow to the pelvis depends on the size of perforation, the contents of the stomach, and the position of patient. As a general rule it is seldom more than an hour or two in reaching the pelvis, and occasionally the time is much shorter.

The change to which reference has been made in the position of the place of acme of pain, in my opinion, is exceedingly important in regard to early diagnostication of general infection in perforated gastric ulcer; for when this symptom is present we may rest assured that, so far as the abdomen is concerned, there is no limitation to the parts affected.

Notwithstanding what has been written by more than one eminent surgeon, I make bold to state that, when the initial symptoms and previous history are duly taken into account, there is no other disaster that occurs in the abdomen which can in every respect simulate acute perforation of stomach. In rupture of the gall bladder the history is different; in rupture of tubal pregnancy the situation of initial pain is in the lower abdomen; and so on through the whole list.

These observations necessarily do not apply to instances seen in a later stage of the disease—especially when the early symptoms have not been carefully noted, and the previous history is

wanting in important details—for toward the termination of acute peritonitis which arises from an internal lesion, no matter where situated, the symptoms are in almost every respect the same.

Permit me to call attention to the advisability, when circumstances permit, of not administering morphia until enough data are obtained to make our diagnosis; for the drug, if given in sufficiently large dose to allay the pain in the early stage, will certainly mask the symptoms, give rise to false security, and render it impossible to ascertain the extent of involvement until the time for successful action is past. But as soon as we are satisfied that the trouble exists, morphia hypodermatically is not only justifiable but beneficial in more than one respect, for it allays the terrible pain, lessens the duration and effect of the severe shock, and in a material manner curtails the amount of anesthetic required during the critical operation which the very nature of the complaint renders imperative.

Surgical Treatment.—Here we have a perforation of the stomach, with the contents, which are always irritating to the peritoneum and never aseptic, distributed in every nook and corner of abdomen and pelvis. Medicinal remedies are utterly powerless as regards cure, though beneficial in allaying pain and mitigating the effects of shock. Nothing short of early, bold, and thorough surgical work can avert a fatal termination. Then the sooner it is done after the disaster has taken place the better the chances are for the patient. Whether it be day or night, the patient should at once be prepared for operation.

Experience has taught me that it greatly expedites matters to have a large irrigating tank with a rubber attachment capable of carrying a stream almost an inch in diameter. Tait's large abdominal trocar makes an excellent nozzle; being bent at a right angle, it can be used without the hand in any way obstructing the view. The flow from this apparatus is sufficiently powerful to rapidly flush the whole cavity and carry away all solid particles that may be present.

It is a good plan, in order to save time, to have all sutures likely to be required threaded and placed in a separate receptacle ready for instant use. For closing the stomach wound there is no material as reliable as silk. It is strong and permits of a finer size to be used; its knot is small, but holds firmly; it is more easily sterilized without deterioration than any other; and, what is important, it acts kindly in this class of work.

When the necessary preparations are completed and the patient anesthetized, a median incision should be made extending from near ensiform cartilage to pubis. Then the bowels, large and small, are quickly eviscerated and protected by sterilized gauze wrung out of hot, aseptic saline solution or water, the temperature of the gauze being maintained by irrigation. If, as is often the case, distension of colon or other portion of intestine renders complete evisceration impracticable, a cut is made in the distended coil opposite the attachment of mesentery for the escape of contents. This procedure soon leads to collapse of the part and makes the work easy. The small enterotomy is closed in the usual manner with fine silk sutures. We now by these means have relaxed abdominal walls and have ample room to examine the stomach. First the anterior wall of the organ is inspected, and then, if unsuccessful, the lesser peritoneal cavity is opened by tearing the gastro-colic portion of omentum, and the posterior wall exposed. It is better in all cases to examine both walls, for there may be two or more perforations. As soon as the perforation is located the part is brought as far as possible out of the wound, carefully washed, and surrounded with gauze sponges. When it is situated near the lesser curvature on the posterior wall, it is necessary to pull the stomach upward on chest.

If deemed advisable by the conditions that exist, the ulcer may be excised; for occasionally, on account of the unyielding and friable character of the surrounding tissue, closure is impossible without doing so. This is more liable to be the case when the situation is near the pylorus; but generally the perforation is simply closed with two or more rows of sutures. It is always advisable, when practicable, to attach a tag of omentum over the part.

Now we inspect by view, as thoroughly as possible, every pouch and corner in the abdomen, and flush each with a large stream of normal saline solution at a temperature of about 105°F. The lesser peritoneum, the space between diaphragm and liver, under liver, in flanks around each kidney, the pelvis, and between folds of mesentery, require special and careful attention. The large abdominal incision and evisceration make this part of the work merely a matter of a few minutes' time when a proper irrigation apparatus is used.

Then comes the question of drainage in these cases. I believe it is always safer to resort to it. It is my custom to drain

with three soft, pure-rubber tubes, none of which is inserted through the median incision, but through stabs as far from it as circumstances will allow—one at back in each flank depression below kidney, and the other for drainage of the pelvis to right or left of the median line a little above Poupart's ligament. The end of the pelvic tube reaches the bottom of the pelvis. It is advisable in married women to put the last-mentioned tube through a puncture in the floor of Douglas' pouch and drain through the vagina, for then there is less risk of the incision becoming infected by the discharge; besides, the drainage by this route is more perfect.

As soon as the tubes have been inserted and the intestines replaced, the omentum is spread carefully over them and attached by a suture or two below the lower angle of incision, so as to prevent a coil of bowel from forming attachment to any place along the internal course of the line of incision afterward, and then the incision is closed as quickly as possible in the manner deemed advisable by the surgeon in charge. Although I am an advocate of closure of abdominal incisions in layers by absorbable buried sutures, in both the cases of perforated gastric ulcer with general infection of abdomen that came under my care, owing to the necessity for haste, the incisions were sutured by the through-and-through method with silkworm gut, always being careful with each suture to catch the fasciæ. In these and in similar conditions of general infection from other causes in which a long incision was required and which was closed in the manner stated, no weakness has afterward shown itself along the course of wound, though such has not always been the case with less extensive wounds. It is probable that the prolonged rest required may be the reason that no hernia results. The main wound is very carefully dried and dressed with dry sterilized gauze, sealed with oiled silk and collodion, and supported with straps of strong rubber adhesive plaster. The tubes are separately covered with gauze wrung out of hot bichloride or carbolyzed solution, which is changed as frequently as the amount of discharge demands. It is well to dispense with the tubes as soon as the requirements of drainage allow.

Eleven years ago last June, before this Association at Detroit, in the discussion on the papers of Drs. Reed and Long-year relating to "the technique in closing an abdominal incision," in which special attention was paid to the avoidance of hernia, I drew attention to the importance, in cases in which

drainage was necessary, of draining through a puncture away from the incision. In my practice the result of this method has proved very satisfactory, not only in the subject under discussion, but in all cases of abdominal work in which a tube or gauze drain becomes a necessity. Especially is the method beneficial in severe instances of appendicitis with abscess; for in them, when the tube is inserted through a stab in the back to the right of the ascending colon and above the crest of the ilium, the flow from the tube is favored by gravitation and the discharge is away from the incision, which may be closed and sealed as in non-suppurative operations.

On more than one occasion in the past I have called attention to the importance, in desperate conditions of the patient, of injecting a quantity of warm peptonized milk or other suitable nutritious liquid food into the jejunum during the operation. It takes only a few minutes' time, yet the effect in tiding the patient through the critical period that follows is more marked and lasting than that of any other method which can be adopted at a later period.

The after-treatment is simple. Dry, warm applications to the surface of the body, especially to the extremities. Strychnia and normal saline solution injections when indicated. No opiate under any circumstances, unless it is quite plain that our patient is doomed. Nothing by mouth for five or six days but sips of hot water. The patient is nourished at first wholly by nutritive enemata, each of which, after the first day, is preceded by an enema of a pint or more of warm water in which an ounce of magnesium sulphate has been dissolved. When the bowels have been freely moved the laxative enema should only be given when required. If thirst be troublesome, a large, high rectal injection of water is beneficial. By the fifth day, if everything has gone well, small quantities of liquid food may be given by mouth and the amount afterward gradually increased. It is safer not to give solid food till after the second or third week.

No matter how kindly the wound heals, the sutures should not be removed before the eighth day, and even then it is better to remove only every second one. After all have been taken out, the part should be supported by long strips of adhesive plaster and a firm and unyielding bandage.

It has often struck me as being strange that the ulcer heals when the perforation is merely closed by sutures. I have frequently asked the question, but have never received an answer

that appeals to reason in a satisfactory way. Do the sutures play any other part in inducing the beneficial result than that of holding the sides of the perforation together, or is the solution to be found in the prolonged rest that the stomach has afterward?

In a former paper, "Notes of Four Cases of Perforated Gastric Ulcer," read before this Association in 1900, I reported a case of perforation with general infection of the peritoneal cavity in which stenosis of the pylorus demanded gastroenterostomy. After the operation the young man, a farmer, enjoyed excellent health, was accustomed to hard work, had an appetite like a lumberman, and, although he was in no way particular in regard to his diet, was never conscious, by reason of distress, that a stomach formed a portion of his physical constitution until two weeks ago.

On the third day of the present month a peculiar and, from a surgical point of view, an interesting event happened to him. In the afternoon of that day, when working in the field, he became aware of a tenderness in the abdomen just above and a little to the left of the umbilicus, but it did not prevent him from finishing his day's work. After supper the pain was more pronounced and the family persuaded him to consult me. He drove to the city and while in my office the pain suddenly became intense. Shock was pronounced, accompanied with nausea and vomiting. He could not bear the slightest pressure over an area of several inches in extent, the centre of which was close to the left side of the navel, and this part was rigid. Pulse 88, temperature 100°. He was at once taken to the hospital, where we found a perforation of the jejunum by a round ulcer with a thickened and dense area around it. It was situated on that part of the proximal arm of bowel which at the previous operation was attached to the stomach wall above the anastomosis. It appears evident that when the ulcer cut the peritoneal coat the adhesion became affected and gave way. The aperture was closed and the bowel again stitched to the wall of the stomach.

At the time it was noticed that the gastroenterostomy performed on February 20, 1900, had caused the stomach to assume a triangular shape, the lower angle of which is situated close to the umbilicus.

The patient has not had a single bad symptom and is now practically well again.

It is my belief that this is the first time that an operation for

a perforated ulcer of the jejunum as a result of gastroenterostomy has been reported in America. In a recent work written by Mayo Robson and Moynihan, reference is made to the liability of peptic ulcer occurring in the jejunum after gastroenterostomy, and the authors give the names of Continental men who have reported cases.

My second case is a good illustration of acute gastric perforation in which the previous signs and symptoms of ulceration of the stomach are wanting.

Miss K. F., aged 21 years; family history good; the daughter of a farmer; accustomed to work; height 5 feet 5 inches; weight 132 pounds, and, except some trivial ailment peculiar to childhood, had never been ill.

In the first week of December, 1901, she had for a few days a feeling of distress in stomach after eating a hearty meal; but this was never so severe as to interfere with her ordinary duties, and on each occasion it passed away in less than an hour. She neither lost her appetite nor vomited. These after-meal attacks ceased without medicinal aid or any departure from her usual diet.

On the 15th of the month she had a hearty dinner and ate an unusual quantity of pickled cucumbers. This meal caused some distress not amounting to pain. At 6 o'clock that evening, while engaged preparing supper, she was suddenly seized with overwhelming pain in the epigastric region, which radiated into back. She fell upon the floor in a state of collapse, and was carried immediately to her bed, when she vomited a large quantity of undigested food containing many pieces of the pickle eaten six hours previously.

Dr. Robinson, of Guelph, saw her at 8 P.M., two hours after attack commenced. He found her in terrible agony; surface of body—especially extremities—pale, cold, and clammy; temperature 96°, pulse 126; abdomen rigid and tender. Although the pain in stomach and back was severe, the place of greatest suffering had by this time moved downward and was situated a little below the umbilicus, chiefly to the right of the median line. The doctor, after having diagnosed the nature of the trouble, gave the patient a half-grain of morphia hypodermatically and later a quarter of a grain more. By 9:30 the severity of the pain had abated considerably. On his return to the city he mentioned the particulars of the case to me, and we decided to advise the removal of the patient to the hospital for as early

an operation as possible. Fortunately the family consented, and the patient was driven three miles to hospital in an ambulance temporized out of a milk wagon, in zero weather, arriving there at 12.30 A.M. the following morning. When I saw her half an hour afterward I was puzzled. Her pulse was 80, temperature 98°. Positively there was no tenderness on firm pressure on any part of the abdomen, except in cecal region; even here the pain was slight. Away from the right iliac region no noticeable rigidity existed. The part over the stomach and transverse colon was distended by gas. Patient answered questions readily and without apparent effort, was quite cheerful, and stated that she was well again and free from any discomfort. She laughed during the interview and made light of the whole matter. Her case in this respect is a good example of the marvellous power of morphia to mask the signs and symptoms in the early stage of acute peritonitis, and makes plain how easily a consultant may fall into error when the initial symptoms and treatment are not duly considered. I must admit that my personal examination of the patient gave rise to doubt in my mind as to the gravity and even the nature of the trouble, and consequently induced me to depart in the beginning of the operation from the method I advocate.

At 3 in the morning she was taken to the operating room and anesthetized. First an incision was made in the median line from near the ensiform cartilage to the umbilicus. No free gas or fluid was found. The transverse colon, being distended by gas, obstructed the view and had to be held below with a gauze sponge. Examination of the anterior surface of the stomach revealed no abnormal condition except marked engorgement of vessels near the greater curvature and in the gastro-colic omentum.

Believing now that a mistake in diagnosis had been made and that the appendix was at fault, the wound was protected with sponges and the usual opening for appendectomy was quickly made, from which escaped, when the peritoneum was cut, a considerable quantity of watery pus; but on the appendix being brought into view it was found to be normal in every respect. It was then noticed that the discharge had not the characteristic offensive odor, and on testing with blue litmus paper its acid reaction was ascertained. The source of trouble was now plain, and the median incision was at once extended to the pubis, the distended colon collapsed, and bowels eviscerated and protected.

On tearing through the gastro-colic omentum, pus escaped and particles of stomach contents were noticed in the latter.

On pulling out the stomach as far as possible on chest, a largish, irregular perforation was found near the lesser curvature. It was surrounded with an area of dense, thickened tissue, the longest diameter of which was more than an inch and a half in length. The part could only be reached with tips of fingers. The field was carefully cleaned, and then, by aid of a needle holder and a long pair of tissue forceps, a row of sutures was inserted in hardened tissue close to the perforation; but on attempting to tie, every one of the sutures tore out. The position of the ulcer rendered excision out of the question. By means of a long, narrow instrument an assistant depressed the whole area and then folds of adjacent wall were sutured over it. This stage of the operation was extremely difficult and tedious. When it was finished every portion of the abdomen was inspected. The flank depressions and pelvic cavity were found to be completely filled with pus containing loose pieces of partially organized lymph. All parts were flushed clean, the drainage tubes inserted, bowels replaced, omentum fastened below, and both wounds closed with through-and-through silkworm sutures. It was almost 6 A.M. before the patient was placed in her bed. Only one hypodermatic of strychnia was considered necessary. For the first three or four hours she had nausea and vomited considerable greenish fluid. Afterward her recovery was uneventful. The temperature never rose above 101° F. The pulse for the first three days ranged from 108 to 132, but was seldom above 116; it then gradually improved and by the end of the first week was normal. For four days all nourishment was supplied by rectal enemata and nothing by mouth except sips of hot water. Then small quantities of peptonized milk, albumen water, broth, and the like were allowed to appease hunger. No morphia was given nor was pain at any time after operation troublesome. There was considerable discharge from drainage tubes, especially from the one placed in the pelvis. Those in the flanks were removed in forty-eight hours, while the one in the pelvis, although gradually shortened, was not dispensed with until the fifth day.

This young lady, considering the circumstances, made a rapid and complete recovery and has not had any gastric disturbance since. Early this summer she married, and has now a home of her own and its cares to look after.

In conclusion allow me to state that the essayist is well aware that many surgeons very strongly object to evisceration of intestines in abdominal work; but in the conditions under discussion there is no other known method by which the operator can make certain that the toilet of the peritoneal cavity has been thoroughly done. For here, no matter how perfect in other respects the technique may be, imperfect toilet is followed by more shock and is vastly more dangerous to the patient than hours of properly conducted evisceration.

THE MECHANISM OF LABOR, AND INSTRUMENTAL ASSISTANCE
WHEN THE HEAD IS TRANSVERSE IN THE PELVIC BRIM.¹

BY

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THERE is a vast difference between low forceps and high forceps. Instrumental assistance with the head at the inferior strait is a safe procedure for any one who possesses reasonable operative judgment; forceps at the superior strait requires as much judgment for its proper performance as any obstetrical or gynecological operation with which I am acquainted. The intelligent use of forceps at the superior strait presupposes an exact knowledge of mechanical relations of the head to the pelvis and a careful differentiation of the cause of delay. If we may judge from text-book descriptions of the operation, this exact knowledge is seldom possessed, and the advantages of a differentiation of the cause of delay are frequently not appreciated. The rule generally followed of applying the blades to the sides of the pelvis, without regard to the diameter of the head grasped, is, in my opinion, as unscientific as would be an unvarying technique in hysterectomy for fibroids regardless of the shape and direction of the growth. Many have such a wholesome fear of the high forceps operation that they invariably perform version when the head is impacted in the brim. We cannot do better in the beginning than quote from Robert Barnes: "In proportion as the head is low in the pelvis, high in the pelvis, or above the brim, the necessity, utility, and safety of forceps diminish." The

¹Read before the Cincinnati Obstetrical Society, October 9, 1902.

paper from which the above quotation is taken, entitled "Forceps and its Alternatives in Lingering Labor," together with its discussion, constitutes the ablest and most authoritative expression I have seen upon the subject.¹ Johnson, of Dublin, was the man who popularized the use of forceps through an imperfectly dilated os uteri. George Kidd, of Dublin, in commenting upon Johnson's statistics, calls attention to the fact that the dangers to the mother increased in direct proportion to the size of the uterine orifice at the time of operation. This is what we should expect, and yet the discrepancy is greater than would be anticipated from the size of the os alone. But is it just to draw the conclusion that the size of the os uteri was alone to blame? Or would it not be more just to suppose that those women who were delivered with instruments, when the os uteri was but two-fifths dilated, were in greater peril than the others, and the attendant had no choice but must accept the added responsibility? The greater the obstruction the sooner must Nature be exhausted, so that with the necessity for early interference we have greater disproportion.

There are many conditions which render it advisable or necessary to apply forceps at the superior strait, but only those which cause transverse positions of the vertex will receive attention in this paper.

Flat Pelvis.—Usually, where the conjugate of the brim alone is narrowed, Goodell's method of version is preferable to forceps if the woman has previously borne children. If, however, there is narrowing of other diameters below the brim, or in primiparæ, or in women who have cicatricial bands—in short, where from any cause the delivery of the after-coming head is apt to be delayed—forceps should be used by preference, if we can place the blades to the sides of the head. If the child is dead the element of time need not be considered in its interests and version is usually preferable.

When for any cause version is contraindicated and the head is arrested in the transverse diameter of the brim, the question of forceps becomes one fraught with interest and anxiety. It is generally assumed that, with the head high in the pelvis, forceps to the sides of the head is impossible, and in this condition, with the head transverse, it might well be so considered by one who had not attempted its use in such a manner. The specific statement is made by some able obstetricians that the blades must be

¹London Obst. Trans., vol. xxi.

applied to the forehead and occiput, but this is a procedure which offers the child but little better prospects than craniotomy; for the occipital bone is generally driven under the parietals, causing intracranial injury, which is fatal within forty-eight hours of birth, even in the cases where life is not extinct when delivery is effected. In these cases, as pointed out by Goodell from clinical experience and demonstrated experimentally by Matthews Duncan, the resistance of the pubes is at first greater than that of the promontory, and the pubic side of the head is held back, the sagittal suture approaching the pubes.

As labor progresses and the head is pressed more firmly into the brim, the sharp promontory begins to indent the posterior parietal and it becomes the point of chief resistance. Engagement is effected by rotation of the head round the promontory, the posterior parietal finding ample space below this point. As this movement is executed the sagittal suture recedes from the pubes and approaches the sacrum, so that we may readily compute the amount of progress by the position of this suture.

Goodell takes advantage of this mechanism in his method of delivering the after-coming head, and by his manipulation it is possible to bring the head past the promontory where the length of the conjugate is less than the width of the incompressible base of the skull. Experience fully justified his claim of the advantages of his procedure of first pulling forward to tilt the head, thus causing the base to pass the brim obliquely. Duncan's experiments show that even ordinary traction results in the same lateral flexion, with subsequent rotation round the promontory; but the economy of time by Goodell's method is of vital importance in the interests of the child, while the economy in force, resulting from direct traction in the desired direction, may constitute the difference between success and failure. It is my object in this paper to show that a similar manipulation is often possible with forceps if the operator is possessed of manipulative skill and cool judgment.

To disarm my hearers as much as possible of the prejudice with which we are prone to be affected when the canons of our faith are disregarded, it may be well to point out some of the physical conditions which make such a use of instruments easier than it would at first appear. In these cases the head is not only transverse in the brim, but approaches that side of the pelvis toward which the occiput is directed, leaving the other side comparatively free. As the concave edge of the blade must be turned

toward the occiput, it follows that the blade, which must find lodgment under the pubes, passes upon this comparatively empty side. There is, therefore, much less likelihood of the blade being nipped and held firmly between the side of the pelvis and the head than in the more normal oblique position where there is disproportion. While the spiral movement, which is to bring the anterior blade to its position in relation with the anterior parietal, must be longer than in an oblique position, there is also much more room for the blade to pass. So beautifully is Nature's method of effecting engagement adapted to the work in hand that we should be exceedingly careful not to trammel her by presumptuous interference, for it is impossible for the bungling hand to recognize the exact mechanical relations. So long as the sagittal suture is drawing nearer the pubes we should keep hands off; but when it begins to recede, showing that the point of contact with the promontory has become fixed, assistance comes within the range of possibility. By suprapubic pressure the rotation round the promontory may be hastened, but frequently the uterus is exhausted before this mechanism can be accomplished. In such a case it is possible to effect delivery by following Nature's example in our operative procedure. The os uteri is usually not thoroughly dilated, for in such cases the head does not come down in contact with the cervix, and if we were to wait for thorough dilatation to occur we would probably have a dangerous thinning of the lower uterine segment. This class constitutes a large percentage of cases of rupture of the uterus. If the occiput points to the left ilium the first blade is applied, upon the flat, directly into the hollow of the sacrum between the head and posterior lip of the cervix. The second or right blade is applied upon it, and then by a spiral movement is brought through the right side of the pelvis, past the forehead, upon the anterior side of the head, until it rests under the pubic arch. The pelvic curve of the blades carries their tips well to the left of the promontory, so that they grasp the occiput. If the sagittal suture is near the pubes the anterior blade must be inserted deeply, and the shank of that blade be brought well up under the pubic arch, the posterior blade, if necessary, being withdrawn and elevated to meet it and lock. If this precaution is neglected the tip of the anterior blade will grasp the head upon the anterior parietal while the posterior blade grasps the neck. To secure a good application the handles should be as nearly as possible perpendicular to the vault, so that a line perpendicular from the sagittal suture

would be in the general direction of the handles. Grasping the handles firmly, you make traction forward for a moment, in order to fix the head firmly in the brim, then, without relaxing your traction, swing the handles backward toward the sacrum. The head rotates round the promontory and enters the pelvis with a jerk not unlike that felt in executing Goodell's manipulation. In executing this manœuvre the operator should pull with the arms alone and be ready to instantly relax his efforts for the following reason: While the head is held in the brim, flexion is not present, and indeed there is often slight extension of the head. The blades grasping the occiput in this unflexed position have a secure hold; but when the brim is passed flexion immediately ensues, and if traction is continued the tips of the blades will glide over the occiput and injure the mother's soft parts. Therefore, as soon as the jerk of entrance is felt, relax your grasp, separate the blades slightly, and by carrying the handles toward the woman's left thigh you carry the tips backward and increase the security of their grasp. Again gripping the handles, you swing them forward in the arc of a circle, bringing the head into the oblique diameter of the pelvis, after which delivery is the same as in ordinary forceps cases.

That this manœuvre is preferable even to axis-traction forceps I am confident. When the Tarnier forceps is used, with the head transverse in the brim, the blades should be obliquely placed both with reference to the head and pelvis, for an axis-traction instrument would crush in the occipital bone as quickly as any other. The very fact that it is an axis-tractor proves its limitations in the class of cases under consideration, for traction must be made behind the axis. When the contraction is limited to the conjugate of the brim the pelvis rapidly widens immediately below the promontory. As there is usually an increased tilting of the pelvis due to excess of the lumbo-sacral angle, the promontory is in reality nearer the operator than that part of the sacral excavation immediately below it. However well the instrument may be adapted for traction in the axis of the brim, we can hardly expect it to permit rotation away from the operator. When direct traction, even in the axis of the superior strait, is made, the head is *pulled* through the conjugate; but by the manœuvre recommended the traction only serves to fix it firmly while by leverage it is *canted* past the obstruction. The difference is that in the last procedure the space below the promontory is utilized to allow the recession of the head, thus decreasing the resistance

of the pubic side of the pelvis. The gain of even a small amount of space is of vital importance in cases of disproportion, and in this way we secure the same mechanical advantages as by Goodell's method in head-last labors.

Transverse positions at the brim are not always due to diminution of the conjugate; in fact, the most frequent cause is an increased tilting of the brim as a result of excess of the sacro-vertebral angle. Next to occipito-posterior positions of the vertex, an excessive inclination of the pelvis is the commonest cause of delay in labor.

Notwithstanding the frequency and importance of this pelvic peculiarity, writers are generally silent in regard to it. Robert Barnes does, indeed, consider it, but principally with the object of discrediting the attempts of others to overthrow the doctrine of obliquity of the head in the pelvis as taught by Naegele. It may be safely assumed, without any attempt at proof, that a given head will enter a given pelvis with greater ease the nearer the axis of the uterus approaches a right angle to the brim, for the force of the uterine contraction is expended to the greatest possible advantage.

The difficulties incident to pendulous abdomen when the fundus falls forward are universally recognized, but when the fundus is posterior to the perpendicular of the brim the cause of delay is seldom detected, and delay is usually attributed to rigidity of soft parts or insufficiency of contraction. It is a sad commentary on the powers of observation of practitioners that those things which receive no mention in every-day text books usually escape observation at the bedside. We seem to forget that text books should conform to bedside observation rather than bedside observation be twisted into compliance with book descriptions. When the lumbo-sacral curve is marked the uterus is not at right angles to the plane of the brim, but the fundus is pressed back by the abdominal muscles until it forms an angle more or less acute with the posterior half of the plane of the inlet. In such a case we are apt to have delay and difficulty for several purely mechanical reasons. One of the difficulties engendered by this condition is defective flexion. Flexion may be perfect so far as the child is concerned, but the relations of the pelvis to the uterine axis neutralize the flexion and make it amount to naught. Before the onset of labor, flexion is present in compliance with the law of economy of space. If the axis of the uterus is at right angles to the brim, the head will, when flexed, enter the pelvis

with the suboccipito-bregmatic diameter in relation with the diameter of the brim; but just in proportion as the sacro-vertebral angle is in excess will the effect of flexion be neutralized, and in many cases the brim is tilted enough to correspond to the occipito-frontal diameter, even when marked flexion is present. We then have the longest diameter of the head presenting in the oblique diameter of the pelvis, and in case the head is relatively large, delay results. When the chin comes in contact with the sternum further flexion is impossible, and the head to effect an entrance must present in a more favorable position. This is effected by posterior rotation of the occiput either into the transverse or opposite oblique diameter of the pelvis. The forces which accomplish this rotation are not dissimilar to those which effect anterior rotation at the pelvic outlet, namely, the resistance of an elastic muscular valve upon the one side and a comparatively empty space upon the other. The anterior uterine wall is much longer than the posterior, and this is especially true in the cases under discussion. The head does not present directly against the os uteri, but is held in the distended anterior lip of the cervix while the os uteri is well back toward the promontory. Because of the posterior position of the fundus the force of the uterine contraction is chiefly expended upon the pubes and anterior uterine valve. In anterior rotation at the pelvic floor the motion is due chiefly to the resistance of the pelvic floor and the presence of an anterior space—the vulva—where no resistance is offered. In the cases under discussion we have muscular and bony resistance in front and a comparatively free space behind under the promontory, so that the conditions are practically the same, only the directions are reversed. We here have an explanation of those comparatively rare cases of occipito-posterior positions of the vertex where the back of the child is in front. While stating that excess of the sacro-vertebral angle is quite common, we yet admit that the occurrence of posterior positions *of this kind* is comparatively uncommon. The explanation which this apparent paradox demands is to be found in the fact that in most cases where there is excessive inclination of the pelvis there is also some slight abridgment of the conjugate. We therefore find that in most cases the posterior rotation ceases when the head arrives at the transverse diameter of the brim. While the narrowing of the conjugate may not be great, it usually plays an important part in the mechanism of labor, for the reason that heads which are not relatively large

will enter the pelvis in the usual manner. It is, therefore, only in cases where space is at a premium that this mechanism is invoked. A large head in a pelvis whose conjugate is slightly contracted will behave very much as will an average head when the contraction is more marked. We therefore are not surprised to find the sagittal suture near the pubes and the occiput hugging the ilium while the head is nipped by the promontory above or anterior to the ear. As labor progresses the sagittal suture recedes, the head entering the pelvis by rotating round the promontory by a "retrograde crab-like movement" (Robert Barnes).

There is another element in the problem of posterior rotation which is intimately associated with abridgment of the conjugate in limiting backward rotation, namely, lack of flexion. Although the head is flexed before the onset of labor, there are conditions present which tend to destroy the flexion. When the fundus is posterior, so that the axis of the uterus forms an acute angle with the posterior half of the plane of the brim, the force of uterine contraction will be in the direction of the uterine axis. As the head usually presents primarily in that oblique diameter of the pelvis which corresponds most nearly with the axis of the uterus, it follows that in first positions, when there is excessive inclination of the pelvis, the force of the uterine contractions is chiefly expended upon the left ramus of the pubes. If the movement of the head was not restrained by the uterine and abdominal walls, it would glide over the pubes, for the "angle of reflexion should equal the angle of incidence." If the posterior and lateral obliquity of the uterine axis is great, the resistance encountered by the occiput might be sufficient to cause a face presentation; indeed, this is the mechanism of production of such abnormalities, but usually such excessive extension is resisted by the lower uterine segment and very slight extension of the head results. The head may not unflex completely and yet present in the plane of the brim, and the greater the lateral obliquity the more will *apparent* extension of the head be present. If the head remains well flexed it will rotate posteriorly and engage with ease in cases of excess of the sacro-vertebral angle; if it unflexes or extends there is no such tendency and it stops in the transverse diameter of the pelvis. If instrumental assistance is demanded the same procedure is indicated as in the preceding class. The posterior blade being passed up in the sacral excavation while the anterior blade is brought through the comparatively free side of the pel-

vis to a position behind the pubes, the head is grasped upon its sides while traction and leverage cants it past the obstruction.

In those cases where the occiput rotates into the third or fourth position the procedure will vary with the conditions. If the head can, by manipulation, be brought into the transverse diameter of the brim, the preceding procedure may suffice, but it is much less easy and safe than in cases where the head is fixed in the brim. Anterior rotation with the hand will not greatly improve matters, for if engagement were possible with the occiput in front it would not have sought the sacral hollow. In ordinary cases where both the head and back of the child are posterior and the uterus at right angles to the brim, the sooner the occiput is brought forward the better; but in these cases it is best to bring the head as low as possible, without undue violence, before attempting to rotate it. It is therefore evident that in such a case forceps rotation is superior to manual. Women who have prominent buttocks, erect carriage, and hollow backs usually have excess of the sacro-vertebral angle. It is a well-accepted proposition, even among those who do not note pelvic peculiarities, that women of this build are apt to have harder labors than their more slightly-built sisters. In subsequent labors less trouble is encountered for the reason that the more labors the woman has had the more lax the abdominal muscles become, and therefore the fundus can come forward, allowing the child to present more nearly at right angles to the plane of the brim. To my mind the most serious objection to the Walcher position is that this angle is increased, and even if the conjugate is slightly lengthened the force which must effect engagement, whether uterine or instrumental, must act at a mechanical disadvantage and be largely dissipated upon the pubes. While contraction of the conjugate and excess of the sacro-vertebral angle are similar in the mechanism of labor by which the obstruction is overcome, and present similar obstetric problems in their management, they yet differ radically in other particulars. Where the trouble is due chiefly or entirely to excessive inclination of the pelvis, the first labor may be difficult and subsequent labors easy, because the fundus comes forward and the full force of the contraction can act in a proper direction. In contraction of the conjugate subsequent labors are apt to be more difficult because of the tendency to progressive increase in the size of the children with each pregnancy. In many cases, however, both contraction of the conjugate and excessive inclination of the pelvis are pres-

ent, and the question of increasing or decreasing difficulty must depend upon the relative importance of the two conditions. In elucidation of this problem it may be justifiable to detail a few cases which have come under observation, taking care to select only such as have a plain lesson to teach.

CASE I.—Mrs. K., æt. 32, was the mother of five children when she came under my observation. She had had four labors, which were rather severe and protracted, but did not demand, or at least receive, any artificial assistance. In her fifth labor her attendant (Dr. B. F. Lyle) attempted forceps, but, failing, resorted to version and delivered a living female child with a deep furrow above the left ear, in which I could lay a finger when she was 3 years of age. Although I did not examine the mother at this time, the character and location of the injury left no doubt that it was the furrow of the promontory and not a fracture made by a blade, as the parents supposed. When this child was about 5 years old I attended the woman in her sixth confinement. The behavior of the head was exactly what we expect in contracted conjugate, and several hours were allowed for preparation of the soft parts and moulding to occur. When the os uteri became half-dilated, however, the right hand protruded alongside of the anterior temple and showed a tendency to come down with each contraction of the uterus. Pushing the anesthetic, the hand was replaced and the forceps applied in the antero-posterior diameter of the pelvis, as already described. After delivering a large, healthy female child, the pelvis was examined carefully and the conjugate found somewhat narrowed, while immediately below it, jutting out like a twin mountain, was a false promontory which gave the impression of an exostosis and considerably diminished the conjugate, as well as interfered with rotation round the promontory. The increased difficulty of the fifth and sixth labors over previous ones was probably due to increasing cranial development in the children, lessened propulsive efforts from lax abdominal walls, and increase of bony resistance from exostosis due to bruising of previous labors. The next case is one of similar character.

CASE II.—Mrs. H., short, thick woman of German descent, was delivered by a midwife in her first and second confinements. In her third labor difficulty of a serious character was encountered, and, after two physicians had failed to apply forceps satisfactorily, Dr. Reamy was called in and delivered with forceps. Dr. E. W. Mitchell had charge of her in her fourth confinement,

which proved to be a case of difficult forceps delivery. Recognizing a pelvic contraction, he insisted, during her fifth pregnancy, on the propriety of inducing labor three weeks before full term. Being frightened at this suggestion, and reasoning that in the labors presided over by midwives less trouble was encountered than in those managed by doctors, they placed her in the hands of a woman. On the evening of October 8, 1901, I was called to her and found the head transverse in the brim with the occiput to the left. There was impaction and the woman exhausted. Forceps was applied as above described, traction was made downward, and the handles swung back toward the sacrum. There was such a decided snap as the head was canted past the promontory that I was afraid the blades had slipped off, but they had not. Her pelvis was ample, with the exception of the conjugate of the brim, which was considerably narrowed by a jutting promontory. These cases are sufficient to illustrate the tendency to progressive difficulties of subsequent labors where the trouble is limited to contraction of the conjugate.

CASE III.—Mrs. W. T., primipara, had been having nagging pains for more than thirty-six hours when I saw her. Dr. E. W. Mitchell was her attendant, and being dubious of his fitness to attend her, on account of his attendance upon a case of puerperal sepsis, he asked me to take charge of the pelvic end of the problem. A rubber glove fresh from an antiseptic solution may make a vaginal examination safe, but is a serious encumbrance in a difficult forceps delivery. The head was transverse, O. to L., and a foot could be felt at either side of the face, showing that ample space existed upon this side of the pelvis. The forceps was applied antero-posteriorly, and by traction and leverage engagement was effected, when the occiput was rotated forward by forceps and delivery completed. The child was a large girl. In her second confinement Dr. Mitchell was engaged with another case and requested me to take charge during his absence. The position and presentation were the same as before, except that the feet did not come within reach; but the contractions were powerful, and in about an hour the rotation of the head round the promontory was effected, and three pains more completed delivery. This is a typical case where the chief difficulty is due to excess of the sacro-vertebral angle.

CASE IV.—In August, 1900, I was called to assist Dr. W. R. Brown in the case of a Frenchwoman in her second labor. A year before she had been delivered of premature twins. She had

been in labor more than twenty-four hours and the head was impacted in the brim. The pelvis seemed roomy, but there was marked obliquity, as indicated by almost perpendicular position of the pubes as she lay on her back. The occiput was directed toward the right ilium, so that it was the left blade which had to be brought forward. The first (left) blade was carried in upon the flat and the tip insinuated between the head and the posterior lip of the imperfectly dilated os uteri. It was worked gently round the left side of the pelvis past the forehead up to its position behind the pubes. The second blade was introduced in front of it and locked. This manipulation is a little more awkward, because when the first blade is carried anterior its handle obstructs the vagina, and this handle must be drawn well to the left to give room for the introduction of the second blade. The fact that we are less frequently called upon to apply them with their concave edges toward the mother's right also renders it a little more difficult. After the blades were adjusted the lock of the Elliott forceps was at the vulva, but delivery was no more difficult than in the preceding cases. Subsequent pelvic examination showed not only excessive pelvic obliquity, but a decided jutting of the promontory.

CASE V.—During the past summer I saw a case with Dr. Robert Carothers which presented the following history: In her first confinement, after long delay, she was delivered with instruments. Several physicians were in attendance, and, if the husband and friends can be credited, traction with forceps was made so violently that it required the combined efforts of all the neighboring women to hold her on the bed. The skull was crushed in delivery. She had several subsequent labors, all presenting great difficulty, after long delay, and all the children were delivered dead. Dr. Carothers saw her in the absence of her usual attendant, and reported the case to him an hour or two later upon his return. Forty-eight hours later Dr. Carothers was again called in, her physician having left town for the night. No progress had been made and the woman was seriously exhausted. Recognizing the serious nature of the case, he asked me to see it with him. The blades were adjusted to the sides of the head, directly antero-posteriorly, and engagement and subsequent delivery accomplished without much trouble. The child had been dead some hours. It was the opinion of both of us that if forceps had been used twenty-four or more hours sooner the child would have been saved, as there was no violence in the delivery

which would have had a serious effect upon it. Dr. Carothers did not know that delivery had not been effected until his second call, after the child was dead.

I will not take time to recite more examples of this use of forceps, although I have used them in this way in several other cases. I chose these cases from my list because the history of some of them was such as to render certain that serious obstruction to normal delivery had to be overcome. Others illustrate clinical facts of importance, while some are reported simply because competent medical men were present who can confirm the truth of my statements; for I well know that in matters of this kind man is prone to doubt the truth of any statement which does not conform to his preconceived conclusions.

I should not have consumed so much of your time if I had been able to quote confirmative authority, but, not being aware of a previous similar use of instruments, I felt that the procedure must stand upon the evidence which I present.

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THE MECHANISM OF LABOR IN POSTERIOR POSITIONS OF VERTEX PRESENTATIONS.¹

BY

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THE mechanism of labor in occipito-posterior positions is not only the most intricate and varying of all positions, but also one which receives the least consideration in our text books of obstetrics. The variations in the form of the mechanism are dependent upon the size of the pelvis and upon the size and degree of flexion of the child's head. The greatest complexity manifests itself at the brim. Before proceeding to the description of the various forms of labor encountered here we must recall some of the anatomical features of the superior strait. For the sake

¹Read by title at the meeting of the American Association of Obstetricians and Gynecologists, Washington, D. C., September 16, 17, and 18, 1902.

of simplicity I will only consider R. O. P., the common posterior position.

The right oblique diameter is trisected by two imaginary lines, one passing from the right side of the promontory of the sacrum to the right ilio-pectineal eminence, and the other from the left sacro-iliac synchondrosis to the pubes parallel to the first line, thus dividing the right oblique diameter into unequal portions, the posterior of which is the narrower, showing an average measurement, in a number of bony pelvis which I have measured, of three and one-half inches, the anterior being sufficiently ample to accommodate any of the lateral diameters of the head. The second anatomical point requiring attention is the distance from the termination of the right oblique diameter at the pectineal eminence to its intersection with the short line subtending the promontory of the sacrum and the ilium. In a number of bony pelvis in which this measurement was taken I found the average distance to be four inches.

To avoid descriptive repetition in the subsequent reference to this line I will christen it the "diameter of favorable engagement," because of the easier and more rapid termination of cases so engaging. There are four forms of mechanism encountered at the brim:

1. The entrance of the occiput in the "diameter of favorable engagement" with the head in a state of excessive flexion.
2. Arrest of the occiput, descent of the sinciput, release of the occiput with re-establishment of flexion.
3. Arrest of the occiput, descent of the sinciput, and conversion into a face presentation.
4. Arrest of the occiput, descent of the sinciput, impaction and arrest of labor.

In mechanism 1 the head is extremely flexed, the suboccipito-bregmatic diameter measuring three and three-quarter inches, corresponding with the "diameter of favorable engagement," measuring four inches. This is the most frequent form and is recognizable by the location of the small fontanelle, it being directly in the axis of the pelvis. It is also the most favorable form, for the occiput does not impinge upon the small space corresponding to the posterior extremity of the right oblique diameter. With good pains the occiput rapidly descends into the cavity of the pelvis, anterior rotation commencing the mo-

ment resistance is encountered, often being completed before the floor of the pelvis is reached.

In mechanism 2 the biparietal diameter of three and three-quarter inches is arrested in the small space measuring but three and one-half inches and the expulsive power of the uterus is expended upon the sinciput. We then have a mechanism taking place similar in character to that which transpires in flattened pelves, the pivotal points being the ends of the short line in place of the terminals of the conjugate. There is the same temporary dip of the large fontanelle, continuing until the biparietal diameter is released from the small space, when the occiput descends. The sinciput meeting with resistance from the left antero-lateral wall of the pelvis, flexion is re-established. This is the form which is marked by a tardy and irregular first stage of labor because of the maladaptability of the presenting part to the brim.

Mechanism 3 takes place when the engagement is such that the occiput is not readily released, either because of its firm impaction or because the expulsive power upon the sinciput has become so predominant that it is continuous until complete extension occurs. It is possible that this may also be caused by the absence of sufficient resistance to bring about flexion. It is furthermore possible that this form is met with in some instances in which the primary causes productive of face presentation are present, but to an insufficient degree, becoming more effective as the head engages in the pelvis.

In mechanism 4 we have to deal with large heads engaging in comparatively small pelves. I once met with a case of this character in a justo-minor pelvis of moderate degree, there having been a premature rupture of the membranes. Labor was arrested for over an hour, but continued after manual rotation of the occiput. In this case we have the occiput firmly wedged in the small space and the sinciput descending until the occipitomental diameter or some diameter short of this is engaged. We then have a five to a five and a quarter inch diameter occupying the oblique diameter of the pelvis measuring five inches or less, and an arrest of labor is the consequence.

When the occiput reaches the pelvic floor, and often even earlier, the next phenomenon in the mechanism of labor becomes manifest. The occiput rotates either anteriorly or posteriorly. The requisites for anterior rotation are flexion, good pains, and a relatively rigid pelvic floor. If the head be in a position

of extension, the sinciput rotates anteriorly, according to the law in obstetrics that the most dependent point rotates to the front. Good pains and a relatively rigid pelvic floor are essential in order to establish the proper balance between the forces of expulsion and resistance. The early experiment of Dubois, which has time and again been repeated for class demonstration, readily proves this. If the head be undersized or excessively compressible, as is the case in premature births or in the delivery of a dead child, a disturbance in the factors just referred to exists and occipito-posterior rotation is the rule.

In addition to the preceding, Penrose mentions a third form of mechanism which may occur, namely, the conversion of an occipito-posterior into a mento-anterior. He says: "The third way is very rare. In these cases the occiput reaches the floor of the pelvis and becomes caught or fastened on some abnormal projecting surface or point, in such a manner that anterior or posterior rotation becomes impossible. The chin now leaves the breast of the child and sinks behind the pubis, and ultimately the case terminates as a face presentation of a mento-anterior variety. In a case of this sort we may suppose the occiput arrested and its further advance rendered impossible by some cause or other; a long and hooked spinous process of the ischium could furnish such an obstruction. It should now be called to mind what takes place in every case of labor in an occipito-anterior position when the occiput gets locked beneath the arch of the pubis. The opposite extremity of the head, the chin, as the only part free to move, under the force of the expelling powers leaves the breast of the child and the head extends; and this is precisely what we have taking place in these very rare cases. The occiput becomes arrested; it can advance no farther; it can rotate neither forward nor backward; and finally the chin, as the only part of the head free to move, leaves the breast of the child, and the head extends, and the labor terminates as a face presentation. The occipito-mental diameter of the head is five inches, the oblique diameter of the cavity is six inches; hence the extension of the head is entirely possible." Possibly this form of mechanism may occur, but I can only conceive of it in the presence of an undersized or easily moulded head. At the outlet the birth of the head is accomplished by extension.

REMOVAL OF VESICAL PAPILLOMA THROUGH AN
INCISION IN THE SEPTUM WITH THE PATIENT IN THE
KNEE-CHEST POSTURE.

BY

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In the present status of the development of vesical surgery, the following case, in which a papilloma of the vesical mucosa was removed in a new way, becomes a matter of great surgical interest. The avenue utilized in this method of exposing the vesical interior has been described by me in a paper read before the Johns Hopkins Medical Society under the title, "A New and Better Method for Opening and Draining the Bladder in Women"; also in a case, reported by me in the *Journal of the American Medical Association* (August, 1902), of ureteral calculi removed through the vesico-vaginal septum, the bladder being distended with air by keeping the patient in a knee-chest posture. To sum up in a few words, after placing the patient in a knee-chest posture and letting the air into the bladder through a catheter or speculum, the posterior vaginal wall is lifted up, so as to expose the anterior vaginal wall from cervix to urethra. A suitably curved knife is now plunged through the vesico-vaginal septum into the air-distended bladder, and if the knife be sharpened on both edges the cut can be lengthened fore and aft from the cervix to the urethra, if desirable. An artificial anemia of the bladder is induced by this posture, and whatever blood escapes runs down into the bladder, in no way obscuring the field of operation. By this method any part of the vesical wall can be caught and drawn up through the incision into the vagina, and in this way papillomata and tumors or ulcerated patches can be removed from the bladder wall. The following operation for papilloma of the bladder will further illustrate the possibilities of this new procedure.

Miss B. was admitted to the Sanatorium on April 16, 1902. She was 51 years old. Her family history was negative; her past history was also negative, except for nervous prostration

ten years, and pneumonia five years ago. Her present illness began with an attack of hematuria following the pneumonia. One year later she had a second attack, after which she had no more trouble until one year ago, when she had an attack of cystitis lasting four weeks; it was characterized by blood and pus in the urine, some frequency of urination, and some pain. She had had no fever or chills, at times pain in the left side. During this attack she was operated on by Dr. C. P. Noble, who curetted the bladder and removed a growth. She had no more trouble until November, but since then had had several severe attacks of hematuria, the last attack lasting ten hours. Beyond chronic constipation the patient seemed to be in good physical condition.

On palpating the kidneys the right one was found freely movable. Her urine was acid, pale, clear, specific gravity was 1010. There were no casts, considerable pus, and some blood. Cultures from the bladder showed: once the proteus; twice the cultures were negative. Uterus, tubes, and ovaries were normal. Bladder also normal to palpation; no tenderness. Interior of bladder generally normal. The left ureteral meatus was hyperemic and bled easily on contact with the end of speculum; the right ureteral orifice seemed patulous, was large and surrounded by a pale area; the anterior margin looked bluish.

On May 7 it was decided to suspend the right kidney. This was done after the usual manner by making an oblique incision in the right lumbar region about eight centimetres long and exposing the inferior lumbar triangle, which was perforated with a pair of forceps and then opened widely with blunt force. The kidney was then exposed and bared of its fat on the posterior surface and suspended to the quadratus lumborum muscle by two silk sutures. The excess of the capsule of the kidney drawn out in exposing the kidney was then cut off and sutured into the wound between the muscles (quadratus and oblique) and the incision closed throughout.

This operation, while relieving the patient in a general way, still left her with the vesical infection, so after five weeks I made another searching vesical inspection with the patient in the knee-breast posture, when I found to the extreme right, on the anterior vesical wall behind the pubic ramus, a pink, lobulated mass hanging like a bunch of grapes, about two and one-half by two centimetres, from the vesical wall rather nearer the base than

the vertex. The pedicle was small and could easily have been divided or snared by special instruments I have had made for this purpose, but, fearing a return of the disease in view of her previous history, I determined upon a more radical operation.

This was done June 15, 1902, by placing the patient under an anesthetic and putting her in the knee-breast posture. Air was then let into the empty bladder, when an antero-posterior incision was made in the median line, about five centimetres long, by plunging a curved knife through the septum. The edges of the incision were drawn apart, after which the tumor was grasped and drawn into the vagina with the adjacent bladder wall. The pedicle, about three or four millimetres long, was then transfixed well away from the tumor in the vesical wall, and tied both ways, silk being used when the tumor was removed. A similar smaller growth nearby was treated in like manner. The vaginal wound was then closed with fine silver-wire sutures through the entire thickness down to the vesical mucosa, leaving a small opening to drain the bladder for a few days, on account of the infection. For this a mushroom catheter was used. The drain was removed in eight days, and a few days later the wound closed entirely spontaneously. After the closure I put the patient in the knee-breast posture, introduced one of my No. 10 specula, exposed the wound inside the bladder, caught the silk ligature, still hanging to the wall, with a pair of alligator forceps, and easily withdrew it through the speculum.

Five months later the patient returned for examination, and I found a perfectly normal bladder, with a little linear cicatrix and a small pit, about one millimetre in diameter, in the place of the excised tumor.

The growth, which consisted of a friable cauliflower-like excrescence, measured about three centimetres in diameter. Microscopically the papillæ consisted of scanty connective-tissue stroma containing blood vessels. This stroma formed papillæ, which were covered by epithelial cells in many layers. The cell type and arrangement was uniform, and cell division not active, yet the impression given was that of malignancy resembling some of the papillary ovarian tumors.

It was diagnosed as papilloma of the bladder (malignant).

This instructive case teaches the following points:

The method of operating on the bladder in the knee-breast posture has a wide range of applicability, being well adapted to the removal of some vesical tumors.

The distended bladder in this posture is far less vascular than in any other position.

What blood does escape falls toward the vertex and does not obscure the field.

The cut bladder wall is much thinner than in the contracted state.

The vesical walls can be everted into the vagina to a remarkable degree; after pulling out a tumor and its adjacent mucosa, the patient can then be put in the side posture to lessen the traction necessary to hold the mass, and the operation so completed.

The bladder wall can be resected and sutured with security in this way.

Lastly, the easy removal of the stitch through the speculum makes it possible to use silk or even fine silver-wire ligatures and sutures in the bladder in supra- or infrapubic operations with the expectation of taking the sutures out in this simple way at a later date.

MALFORMATIONS OF THE UTERUS.¹

BY

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EVERY organ that is not of normal proportions is, generally speaking, malformed; but for the purpose of this contribution we will confine the term "uterine malformation" to those conditions having their macroscopic origin only during the period of uterine development. Ill-formattons from neoplasms are, therefore, not included, because, though they may have their microscopic or theoretical origin in the embryo (Cohnheim's theory), they are usually not detectable, macroscopically, until after maturity. Having restricted ourselves to those deformities which are produced by a departure from, or cessation in, normal growth, or both, it is advisable, for clearness in discussion, that we review briefly the changes occurring during the period of normal development, which period may very properly be said to

¹ Read before the Alabama State Medical Association, 1902.

begin with the first appearance of the Müllerian ducts, in the second month of embryonal life, and to terminate with the acquisition by the uterus of the power to perform its characteristic functions.

In the fifth week of embryonal life the Müllerian ducts make their appearance as two ridges, each of which lies to the outer side of the corresponding Wolffian body and duct and parallel to the course of the latter. In a short time these ridges become distinct tubes. Their upper ends diverge and open into the peritoneal cavity, while their lower converge and are closed. During the latter part of the month the lower two-thirds of the ducts, continuing to approach each other, unite at a point near their centres, or, in other words, at the junction of the middle and lower thirds of the ducts. This union progresses upward and downward—more rapidly downward—during the third and fourth months, at the end of which time the ducts are firmly blended with each other in their lower two-thirds. The septum formed by the blending of the ducts having, in the meantime, been absorbed, a common canal is produced. In the fifth month the cervix appears and divides the common canal into an upper, or uterine, and a lower, or vaginal, canal, each of which is then lined with its characteristic epithelium. The upper thirds of the Müllerian ducts continue to diverge and form the Fallopian tubes, the extremities of which are cone-shaped and fimbriated. Attached, near its middle, to the junction of the Fallopian tube and the cornua of the uterus is the inguinal ligament, which later forms the round and ovarian ligaments. From the sixth through the ninth month the walls of the uterus thicken. The cervix, during this period, grows faster than the body, and at birth is larger, nearly twice as long, and its walls are thicker. From the time of birth to within a few years of puberty there is very little change in the organ, but during the last two or three years preceding menstruation it takes on, as it were, new growth. The fundus is now formed, and the body, growing faster than the cervix, is greater in all its measurements than the cervix when the organ begins to functionate. This brings us to the subject proper.

From the number of cases of uterine malformation accidentally discovered, it is quite certain that there are many that are never recognized; and, this being true, it is impossible to reliably estimate the frequency of the condition. However, we may safely say it is not very uncommon.

We may divide malformation of the uterus into the infantile uterus, caused by retardation or cessation in growth after birth; and aberrant uterus, produced by a departure or divergence from normal development during embryonal life, with or without a retardation or cessation in growth. The former, or infantile uterus, may very properly be considered as embracing degrees of uterine dwarfishness, and, from a practical or clinical standpoint, is probably equally as important as the aberrant uterus, which is caused more by a departure or divergence from, than a retardation or cessation in, normal embryonal development. Neither physically nor physiologically is the infantile uterus susceptible of a subdivision; but we will leave this malformation for future consideration. The aberrant uterus, unlike the preceding, represents so many different physical conditions as to make a subdivision or classification a necessity. The manner of its formation makes it clear that, whatever subdivision or classification is adopted, there will be a gradual gradation between the varieties, or a merging of one into the other. What has been said in regard to the impossibility of determining the frequency of the anomalies, in general, applies to the estimation of the comparative frequency of the subvarieties of the aberrant class. The best that could be done would be to make an estimation from the frequency with which the subvarieties have been discovered. But in this attempt a serious difficulty would be encountered, viz., lack of uniformity or of common agreement in classification, which has caused the use, in the report of cases, of the same term to express different conditions. We will, therefore, not undertake to give—if I may use the expression—with statistical accuracy the relative frequency of these deformities, but will, in general terms, state what we believe to fairly represent the truth.

Beginning with the subvariety which represents the least degree of malformation of the aberrant class, we have:

I. The *non-fundated and grooved uterus*, an organ without a fundus, and with a groove or depression extending vertically along its anterior and posterior surfaces. These grooves are the last signs of union between the ducts of Müller. It is claimed that the fundus of the uterus is not developed until within a few years of beginning menstruation, but the grooves formed by the coming together of the two tubes or ducts should be obliterated during the fifth month of embryonal life. Therefore this malformation represents a departure from normal de-

velopment in the fifth month of fetal life, and a retardation in growth, after birth, to the extent of a non-development of the fundus. In size and function the organ may be reasonably well developed, and, as a consequence, there may be no symptoms to direct attention to it. Usually, however, it is incapable of properly functioning, and there is dysmenorrhea, irregular or scanty menstruation, and sterility, or there may be amenorrhea. This anomaly has not often been reported; but whether this is due to its rarity or to its comparative infrequency in abnormal manifestations, or to the difficulty in diagnosis, cannot be determined. It is quite reasonable to presume that these last-named conditions contribute something to the fewness of the cases reported.

Treatment.—Of course no hope can be had of correcting the deformity. All treatment must be directed toward stimulating the uterus to a growth or activity which will enable it more or less to painlessly discharge its functions. When amenorrhea is present it denotes either an absence of the endometrial structure or defective ovaries, and, therefore, treatment is of no avail. But if there is scanty, irregular, or painful menstruation, general treatment, hygienic, dietetic, and medicinal, is more effectual than local measures, unless there is an inflammatory process superimposed upon the defective development. Of the local treatment I will speak when discussing the infantile uterus, as the same measures are applicable to both conditions. If dysmenorrhea is excessive and other measures do not materially mitigate the suffering, ovariectomy or hysterectomy may have to be performed. I am inclined to believe the latter is the preferable operation, because, while it checks menstruation, and therefore the pain, it does not bring on the nervous disturbances of artificial menopause.

II. The *septate uterus* is the next in degree of malformation. It is, physiologically, a single organ whose cavity is divided, more or less completely, into lateral halves. It has been more frequently reported than the other varieties of the aberrant class, except the bicornate and the double uterus. It is the result of the septum which is formed by the blending of the ducts of Müller having been only partially absorbed. With this exception, the development may be perfect. Usually, I think, there will be some evidence of the grooves characterizing the variety above considered; the measurement of the organ from side to side will be relatively greater than normal, and the fundus

partially or completely absent. When the septum is complete the uterine cavity, as a whole, is divided into lateral halves; but when incomplete, the cavity of the body, or that of the cervix, may be fully or only partially divided (subseptate uterus). The septum should be absorbed, probably, during the fourth month of embryonal life, and, therefore, the septate uterus represents a departure from normal at this period of development. It is often, probably in more than one-third of the cases, associated with a similar division of the vagina. Chlorosis is said to be frequent in this and more frequent in greater malformations. Rokitansky and others have held that genital anomalies and functional disturbances of the genital organs were etiologic factors in the production of chlorosis; whether this is true, or whether they are all effects of a common cause, I am not prepared to say. "We are ignorant of the real cause of chlorosis." Menstruation may be normal, though it is more commonly disturbed, irregular, scanty, or painful. If the flow should become excessive it probably indicates that an inflammatory condition has been set up. Sterility is more frequent than we are accustomed to regard as normal. It is claimed that the cavities of a septate uterus may menstruate at different times, but, in my opinion, where there has been sufficient union between the ducts of Müller to produce a septate or subseptate uterus the halves have become a physiologic whole and functionate as such. When union has not advanced sufficiently to make this true, I am of the opinion that it should be considered a double rather than a septate uterus; for, physiologically, it is surely a double organ, and, physically, it will more nearly approach the double variety. Pregnancy may exist in both cavities at the same time as the result of the same or different coitions. In the latter instance we probably have an explanation of superfetation. In a subseptate uterus the placenta may be on one side of the incomplete partition and the fetus on the other. Abortions are frequent, as they are in every variety of uterine malformation, because the lack of development carries with it a corresponding lack of physiologic activity, and pregnancy is a physiologic process. When the placenta is attached to the septum, premature emptying of the uterus is the rule, because the structure of the septum does not afford a proper soil for placental growth. Hemorrhage usually follows the detachment of the placenta from the septum, on account of the latter not having the power to contract and close the sinuses, as does the wall of the

normal uterus. Malposition of the fetus is common in this as in other malformations. Labor may be tedious, from want of proper force on the part of the uterus to expel its contents, or delayed, and even prevented, by the septum acting as a physical hindrance.

Treatment.—General treatment: Every effort should be made to develop the physical powers of the girl and to restore and maintain those of the woman. This applies not alone to the septate, but to every variety of uterine anomaly.

Local treatment: Measures for stimulating the growth of the uterus will be considered in speaking of infantile anomaly. If dysmenorrhea impel operative interference, I am inclined to advise hysterectomy instead of ovariectomy, for reasons given when considering the non-fundated uterus. There is no special indication for the removal of the septum in the absence of the possibility of pregnancy, but if the patient is exposed to this condition the uterus should be dilated, the septum removed with scissors, the endometrial surface curetted, and the cavity packed with gauze. The operation is practically free from danger, and there is no contraindication to performing it whenever the condition is discovered. If the septum is interfering with the progress of labor it should be cut, rather than wait for it to be torn by the labor force.

III. The third variety of the aberrant class of malformations is the *double-horn*, or *bicornate*, uterus. It has been claimed that this is the most often recognized of the anomalies of this class, but my investigation of the literature at my command leads me to the belief that it is the second most frequent. It is caused by a failure of the upper halves of the middle thirds of the Müllerian ducts to unite, while the lower halves of the middle thirds and the lower thirds form a union, producing the cervix uteri and the vagina. The cervix may be perfect, or it may be divided by a septum into lateral halves, each leading into its corresponding uterine horn. The vagina is more or less septate in about ten per cent of the cases. The union or fusion of the middle thirds of Müller's ducts should occur during the third or the fourth month of embryonal life; therefore the double-horn uterus is indicative of a departure from normal development at this period. Exceptionally the horns occupy an antero-posterior relation to each other. The only explanation that can be offered for this condition is that the Müllerian ducts were dislocated or misplaced at an early period of development.

One horn has been found retroflexed and the other antelexed. Passing between the horns from the rectum to the bladder is often a ligament, called the vesico-rectal. From the position of this ligament it has been assumed that it caused the malformation by preventing the union of the ducts. I hardly think this is true, for the reason that, in my opinion, union of the ducts occurs too early in fetal life to admit of the probability of the presence of a true ligamentous formation as a hindrance; and then, too, the ligament by no means always exists in this anomaly. I am of the opinion that the vesico-rectal ligament is the result of a cause, and is not the cause of any uterine malformation. It may be the result of the same cause that produces the bicornate uterus. Of this cause we intend to speak elsewhere. Both horns may be poorly or well and equally developed. One horn, usually the left, may be better developed than the other. If one of the horns is rudimentary there may be defective development on the same side in one or more of the following structures, viz.: Fallopian tube, ovary, round ligament, bladder, ureter, and kidney. If the vagina is septate the side corresponding to the rudimentary horn will be less well developed. Both horns may menstruate at the same time, which occasionally causes an excessive flow. Each may menstruate regularly every four weeks, but at different periods, causing a form of metrorrhagia. Such a case came under my observation. The horns may alternate every four weeks in this function and then there will be a normal menstruation. One of the horns may be so rudimentary as not to have a menstrual function. When this is true there is usually a scanty or irregular flow. If both horns are poorly developed there will be, as a rule, scanty, irregular, and painful menstruation. Amenorrhea is rare, as it "is very exceptional if endometrial structure exists." Profuse flow may in time take the place of the scanty and irregular menstruation. When this occurs it means that some morbid or pathologic change has taken place, usually inflammatory in nature. The rudimentary horn may be closed at its cervical opening, causing mucus or the menstrual flow to accumulate and distend its cavity, even to the extent of producing rupture. When rupture takes place it is usually through the septum into the vagina, though it may be into the peritoneal cavity. Chlorosis and albuminuria are not uncommon. Both conditions were present in a case that came under my care. If both horns are well developed, pregnancy is seemingly more frequent than normal, and may exist in both

at the same time as the result of the same or different coitions. If pregnancy exists in both horns at the same time, but in different periods of development, it probably affords, as I believe it also does in the septate uterus, an explanation of superfetation. If the horns are equally developed and the vagina is not septate, they seem to alternate in the function of pregnancy. But if the vagina is divided, the left horn more frequently becomes pregnant, because the left half of the vagina is usually better developed or larger, and, therefore, more readily admits the male organ. When pregnancy exists in one horn the other may continue to menstruate; usually, however, membranes form in it. Abortions are frequent, but not as frequent as in septate uterus, because in the latter the placenta is often attached to the septum, to which fact I called attention in discussing that anomaly. If the pregnant horn is very rudimentary there is danger of rupture before, as well as during, labor. When rupture occurs it is usually at the junction of the horn with its fellow. Labor may be normal or it may be slow or impossible of completion. When tedious or impossible of termination without assistance, it is due to one or more of the following conditions, viz.: lack of muscular force on the part of the pregnant horn; failure of the rudimentary cervix, which may be nothing more than a pedicle, to properly dilate; obstruction from a distended horn occupying a position in the pelvis below the fetus; abnormal position of the child, which is frequent; and the oblique position of the horn, preventing the forces from being directed in the axis of the pelvis. It has been claimed that the vesico-rectal ligament holds the horn in its oblique position, but I think the broad ligament, which in these cases falls short of normal development, is more responsible for the harmful position.

Treatment.—If scanty, irregular, or painful menstruation exists and is due to a rudimentary state of one or both of the horns, local treatment, which we shall consider when discussing the infantile uterus, should be resorted to, in addition to the general treatment that has been referred to under the first variety of this malformation. If dysmenorrhea is such as to demand surgical interference, and is associated with the functioning of both of the horns, I prefer their removal, for the reason previously given, to the ablation of healthy ovaries. As the horns sometimes menstruate at different periods, it may be that the pain is associated with the functions of only one of them. If this can be established the operation should not include the

other. One of the horns should be excised if there is an excessive flow, menorrhagia or metrorrhagia, which is not relieved by curettage and local treatment. If there is a difference in their development the smaller horn should be sacrificed. In a case in my practice the metrorrhagia was checked in this way. If the girl is in other respects well developed and well nourished, and amenorrhea is present, it is probably due to an absence of endometrial structure. In such a case treatment is of no avail. It is true that local treatment sometimes causes a bloody flow, but it is simply a hemorrhage and not menstruation. If one or both horns are closed at their cervical opening and there is a retention of mucus or blood, that should be liberated by destroying the cervical atresia. The next day after the entrance is made the cavity may be washed out with an antiseptic solution, which should be repeated every day for about a week. Sometimes a rudimentary horn is attached to its fellow by a pediculated neck and it is impossible to enter its cavity through the cervix. When this is true it is advisable to make an opening, just as is done in the case of pelvic abscesses, and, after washing the cavity, insert a drain. The accumulation is frequently decidedly infectious; therefore every care should be taken to prevent a rupture of the distended sac and the escape of its contents into the peritoneal cavity. In allowing the pent-up matter to flow out through the opening made, haste should be avoided, as its too rapid discharge is liable to inaugurate an excessive contraction of the distended horn, which may rupture its wall. After a patient recovers from this operation, I think, as a rule, it is advisable to remove the horn to prevent a recurrence of the condition. If the uterine horn tears and empties its contents into the abdominal cavity, celiotomy should be performed at once, the peritoneum thoroughly washed with salt solution, the torn sac removed, and gauze drainage established through the vagina as well as suprapubically. If either half of a bicornate uterus, in a married woman, is very rudimentary, some steps should be taken to prevent it becoming pregnant, because if pregnancy does occur the woman is subjected to the risk of uterine rupture or to the impossibility of delivering the child through the poorly-developed cervix. I believe the danger is sufficient to justify, as a preventive measure, the opening of the abdomen and the removal of the rudimentary horn. If both horns are so poorly developed as to make it probable that neither would or could go through with a preg-

nancy, I am of the opinion that menstrual disturbances would exist to such an extent as to require their removal. Should this latter not be true, then I think the Fallopian tubes should be removed. Let me say here that while the absence of menstruation from poor uterine development indicates that sterility is a probability, it does not mean that pregnancy can or will not occur. Therefore amenorrhea is not a positive contraindication to the removal of the tubes, which I prefer in these cases to hysterectomy, because it interferes with no function except that of pregnancy. To my mind this operation is very much better than taking the chances of having to resort to the repulsive measure of terminating pregnancy to avoid the dangers that I have mentioned. In removing the tubes it is necessary that the openings into the uterine cavity should be perfectly and permanently closed, which is not accomplished if a ligature is depended upon to do so; for it has been proved that a Fallopian tube has great power of ridding itself of the ligature and re-establishing its canal. Each tube must be cut from its cornu by a V or wedge-shaped incision, which is snugly closed by sutures. Unfortunately, many, if not the majority, of these cases go through undetected until pregnancy has taken place. Uterine rupture is more fatal than rupture of the sac in ectopic gestation, because there is greater vascularity of the uterine walls; therefore, in any case where it is our best judgment that pregnancy cannot go to term, or, if it does, the child will have to be delivered by celiotomy, as when there exists what I have chosen to call the pediculated cervix, we should not hesitate to produce an abortion. If the cervix can be dilated sufficiently to allow the passage of the contents of the uterus, the organ should be emptied by the vaginal route and excised at a subsequent time by celiotomy. But if the former is impossible the abdomen should be opened and the impregnated horn removed at once, unless the fetus is near the period of viability. In the latter instance delay in operating is justifiable, out of consideration for the life of the child, and as no material risk would be added to the mother, for a uterine horn that has developed uninterruptedly to about the sixth month of pregnancy will probably continue to term. I do not think it is best to wait until labor pains begin before operating, because the contraction of the muscular walls may cause a rent in the sac. It is usually impossible to diagnose pregnancy in a rudimentary uterine cornu from ectopic gestation, but, fortunately, the treatment of both

conditions is practically the same. The claim is made that, even after the abdomen is opened, it is difficult to distinguish cornual from tubal pregnancy; but it seems to me that if we keep in mind the fact that in the former the unimpregnated horn has only one round ligament and the sac to be removed has the other, which is attached to its outer side, we should experience no difficulty in arriving at a correct conclusion.

IV. The *double uterus*, or *didelphys*, is said to have been described first in 1557 by an Italian, Francisco Antonio Catti. It is probably the most frequent variety of the aberrant anomalies, and is the result of a separate development of the Müllerian ducts. They may be attached to one another, particularly at their cervical extremities, but there is usually no decided blending or fusion. When the bodies are separated the vesico-rectal ligament may exist and pass between them. The claim has been made that this ligament is responsible for the malformation. What I have said in regard to its being the cause of the bicornate uterus applies here with equal force. Each uterus has a tube and ovary and may be well developed, or one, more frequently the right, or both, may be rudimentary. When one is so poorly developed as not to functionate, its tube, ovary, and round ligament may be defective. Less frequently the ureter, kidney, and the half of the bladder on the same side as the rudimentary uterus may share in the ill growth. On account of the incomplete or imperfect way in which cases of uterine malformation have been reported, it is impossible to give positively the frequency of accompanying defective developments in other organs. After a review of the imperfect reports at my command, it is my opinion that in about seventy or seventy-five per cent of double uteri the vagina is more or less divided, by an antero-posterior septum, into two lateral canals. Von Engel reported a case of double uterus with two bladders, two urethræ, two vulvæ, and two vaginæ. This malformation is due to a breach in the second and third months of embryonal development. The organs usually occupy a lateral position to one another; exceptionally one is in front of the other. What has been said in regard to the functions, symptoms, signs, dangers, and treatment of the bicornate apply with equal truth to the double uterus, and, therefore, need not be repeated.

V. The *uterus with two cervixes and one body*. Though this is recognized by some as a distinct variety of malformation, belonging to the aberrant class, I do not think it properly de-

serves such a position. A double cervix and a single body can, of course, be produced in no other way than by the fusion of the extremities of the lower two-thirds of Müller's ducts, and a failure of the centres of the same parts of the ducts to unite. We know from our embryologic studies that the first union between the ducts of Müller occurs at the junction of their lower and middle thirds, and that this union travels upward and downward forming a common canal, which is later divided into an upper or uterine and a lower or vaginal canal by a constriction or ridge appearing at the point of the first union between the ducts. This ridge is the beginning of the cervix, which, therefore, has no existence until fusion is complete. Now, I think we are hardly justified in believing that the lower two-thirds of the Müllerian ducts will unite or fuse at their extremities and remain separate at their centres, where they should first join each other. It is my opinion that the cases reported of this anomaly are nothing more or less than subseptate uteri in which the septum is confined to the cervix.

VI. The *unicornate*, or *one-horn, uterus*. This anomaly is due to the failure of one, more often the right, Müllerian duct to develop, while the other continues, more or less uninterruptedly, its growth. I do not believe there was ever a case in which either one of the Müllerian ducts was totally absent. In the condition now under consideration the development of one of the ducts ceased or was retarded or diverted in its growth at an early period of embryonal life. The cervix of a unicornate uterus may be formed by one or by both of the embryonal ducts. In the former case the vagina will be well formed, and there will exist a band of tissue running off from the uterus, at about its internal os, which is continuous with the Fallopian tube when it exists on the undeveloped side. When the cervix is formed by one of the ducts there may be a similar band of tissue, which, though continuous with the Fallopian tube, will not be directly connected with the uterus, but will probably extend down by the side of the vagina. These bands or remains of the Müllerian ducts may be, and usually are, so small as to be undiscoverable during life. It is clear that the unicornate uterus is the result of a greater lack of growth in one of the Müllerian ducts than that which forms the rudimentary horn of a bicornate or of a double uterus.

As a rule the Fallopian tube of the undeveloped side is absent, and frequently the ovary and round ligament are so, or seriously

defective. The vagina is small and the corresponding kidney, ureter, and one-half of the bladder may also be rudimentary. If one horn is well developed there will probably be no symptoms to attract attention to it; but if it or its appendages are not well formed, the symptoms, signs, dangers, and treatment are the same as have been discussed in connection with the rudimentary horns of the bicornate and double uterus. I will, therefore, not review them. However, a diagnosis of a unicornate uterus may be very difficult. I will, therefore, not leave the subject without calling attention to some facts whose discovery, on physical examination, establishes the presence of the condition. The uterus will be under size, particularly in its measurements from side to side, and will not occupy a central position, but will be directed to one side, more frequently the left, because it is formed more often by the left Müllerian duct. Normally the uterus is a little to the right of the median line, on account of the position of the rectum. Only one ovary and tube will be attached to it, and they on the side to which the uterus is directed. The vagina may be small, as it is usually formed by only one of the ducts. There may be a very rudimentary vagina by the side of the one corresponding to the developed uterine horn.

VII. Absence of the uterus. This is only a relative term, as I do not believe there was ever a viable female child in which there was not some sign or evidence of the Müllerian ducts having existed and having made an effort to form a uterus. The effort may have been so feeble as to have produced the merest trace of an organ, similar to the representative of the uterus in the male, which may be so small as to make it very difficult, or even impossible, to discover it, except on postmortem examination. This anomaly is exceedingly rare and is usually found only in cases of monstrosities, "such as the acardiac and sym-podial varieties." The vagina and Fallopian tubes are usually absent; so, also, may one or more of the other members of the genito-urinary system be absent or seriously defective. If the child continues to live it is claimed the mammary glands will not develop nor will pubic hair grow, but I think this is only true when the ovaries are also wanting in functional power. Chlorosis and albuminuria are rarely absent. There is no menstrual function, but if the ovaries are developed sexual desire may exist. No treatment is indicated other than that for chlorosis and albuminuria, unless the ovaries are defective and

their efforts at ovulation are excessively painful. When this is true, ovariectomy should be done.

VIII. The *accessory uterus* may be either a second or a third uterus. When the former, it differs from the double uterus in that one of the organs has both round ligaments and all the appendages attached to it, while the other has neither tube, ovary, nor round ligament, though it may have a cavity with a cervical opening into the vagina. When it is a third organ or uterus, it has neither tube, ovary, round ligament, nor cervical opening. The uterus proper is either double or bicornate. The third uterus has never been detected except on postmortem examination, and, as a rule, is nothing more than a small solid mass, though exceptionally it may be cavernous. The accessory uterus is anterior to the other uterine formation. Decidual membranes have been found in its cavity. It is supposed to be the result of a deflection of a part of one of the ducts of Müller during its development.

The discussion of the "Infantile Uterus" will form the subject of another contribution which I hope to make in the near future.

21 SOUTH PERRY STREET.

A REPORT OF TWO CASES OF PREGNANCY COMPLICATED BY SEVERE HEART LESION.¹

BY

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ONE of the conditions most to be dreaded as a complication of the period of childbearing is without doubt a severe heart lesion, and therefore it seems worth while to report the following cases:

CASE I.—M. C., æt. 35; married at the age of 16; Vi para; last confinement June 29, 1895. Patient gave birth to twins at her last confinement. Both children were alive at birth, and one is still living, it being the only survivor of her six children. The history of her previous labors is without interest, other than that during her last pregnancy and labor she suffered somewhat from dyspnea.

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She has always been an exceedingly healthy woman, the only illness since her childhood having been an attack of rheumatism occurring five years ago. This attack was slight and rapidly passed off and she was not aware that she was in any way the worse for it. During her last pregnancy she reports that she suffered a great deal from shortness of breath and indigestion, but otherwise she did not notice anything out of the ordinary, and she gives no history of any unusual severity of the labor. As has been noted, it was a twin pregnancy and both children were born living at term.

Early this spring she had a severe attack of rheumatism affecting the entire left side and compelling her to remain in bed for a period of six weeks. She was obliged to sit up in bed in order to breathe, and also states that she has had a severe hacking cough all the fall. Her family history is exceptionally good. She is one of a family of seven, five sisters and two brothers, all of whom are living and well. Her father and mother are also living, the latter being perfectly well. She says that her father has suffered from Bright's disease for years.

This case was referred to me by Dr. H. D. Beyea, who had delivered her in her previous confinement. It was his wish that she be admitted to the Maternity Hospital, but the patient, when seen before the onset of her labor, refused. She was, when first seen, suffering somewhat from dyspnea, her feet and legs were edematous, and her heart action was rapid. The murmurs noted at this time were the same as found later, except for an increase in their intensity, and so no consideration is necessary here. Her abdomen was markedly enlarged and there had been apparently no subsidence of the uterus.

Not hearing anything further from her, I was under the impression that she had engaged a physician who would care for her at her home, and was surprised to receive a summons to see her late at night on November 24, 1900. Labor had begun but a short time before, and the pains were of a good character, occurring at intervals of fifteen minutes. Dilatation of the os had reached the size of a five-cent piece and the membranes had ruptured with the first few pains. The general condition of the woman was decidedly such as to cause anxiety, as she was unable to lie down at all and as there was a marked increase of the edema, the vulva and face as well as the extremities being involved, and the cardiac action being very rapid. She was prevailed upon to go to the hospital, and was admitted early on the morning of the

25th. An examination of the urine on admission showed a specific gravity of 1030, with one-half of one per cent of albumin.

An examination several hours after her admission showed that dilatation was taking place very slowly and that the pregnancy was multiple. The position of the first child, other than that it was presenting by the head, could not be made out, on account of the large amount of liquor amnii in the other sac; but as the pains were being well borne, any marked cyanosis being absent, it was decided to wait for spontaneous delivery, being ready at any time to terminate the labor if the occasion should arise.

Early in the afternoon the condition of the patient became less favorable. The dyspnea had somewhat increased, there was some cyanosis, and the dilatation had progressed but very little, though the cervix was easily dilatable by the finger. The trouble was apparently due to an absence of "fore waters," which want was particularly important, since, on account of the size of the other child, the presenting fetus did not feel the *vis a tergo* of the uterine muscle to a degree sufficient to cause the head to descend and itself cause dilatation. It was, therefore, decided to terminate the labor, which was done without difficulty by manual dilatation under mild chloroform narcosis, delivery of the first child being at once accomplished by forceps. As soon as the membranes of the second child were punctured its head engaged and it was very rapidly and spontaneously delivered. The second amniotic sac presented a decided hydramnios. Both children were alive when born, but soon died. The first was much undersized, its weight being but 1,300 grammes; the second child was of normal size. It may be further noted that there was but one placenta, that the sex of both children was the same, female, and that, therefore, they were unioval twins.

The mother stood the delivery very well, the only symptom to cause any alarm being rather free sweating, and her subsequent convalescence was entirely uneventful; the cyanosis, intensity of vessel thrill, and to some extent the intensity of the murmurs rapidly decreasing, while the albumin entirely disappeared from the urine in a few days.

At the time of admission an examination of the heart showed the superficial area of cardiac dulness to extend from the second rib and left sternal border to the anterior axillary line; that the nipple beat was in the sixth interspace one inch outside of the nipple line; while the deep cardiac dulness extended from Lud-

wig's angle along the third rib to the axillary line and from the second interspace on the right of the sternum to the fifth rib in the parasternal line. The area of the apex beat was three inches broad, and a powerful impulse was noted over the whole precordial region.

It was also noted that there was a distinct pulsation in the nails and that the temporal arteries were tortuous. The pulse in the radial was full, regular, quite receding, and compressible, and the artery itself was hard and slightly tortuous.

By auscultation it was found that the first sound of the heart was replaced by a short and moderately loud presystolic murmur, while the second sound was also replaced by a diastolic murmur of long duration and of a shrill character, having at its commencement a decidedly whistling character. At the fifth interspace there was a loud first sound accompanied by a murmur and also a diastolic murmur. In the fourth interspace there was a booming first sound, together with a short distinct second sound with a prolonged diastolic murmur. In the third interspace there was a short, harsh systolic murmur, an accentuated second sound, and a prolonged diastolic murmur. At the pulmonic cartilage there was a loud, harsh systolic murmur with a prolonged diastolic murmur. At the aortic cartilage there was a harsh, prolonged systolic murmur and a short diastolic murmur. At the tricuspid cartilage there was a booming first sound, in addition to which both systolic and diastolic murmurs could be heard. Finally, in the axilla the stethoscope showed the presence of a loud, harsh murmur leading up to an accentuated first sound, with a faint second sound which was clear from any murmur.

The above examination was made by Dr. Joseph Sailer, at that time the pathologist to the hospital.

CASE II.—The second case is that of Mrs. C., who was referred to me by Dr. Horace Williams. The patient is over 40 years old, has been married twenty-two years, and has had nine children. She has had no miscarriages, and all her labors were normal until the sixth, which was instrumental. The seventh was normal, and the eighth was terminated by version, the child being born dead. The ninth—the present—labor was also terminated by version, with the same result.

The patient has never had rheumatism. Fourteen years ago, after the birth of her fourth child, she first noticed trouble, which she referred to her heart. She thinks that it was caused

by hard work during her pregnancy. During her last three pregnancies she has had increasing trouble, suffering from dyspnea, palpitation, and very great irritability of the heart. During the latter months of the just completed pregnancy there was present at the apex a murmur which was systolic in time and was transmitted to the axilla. The abdomen was decidedly larger than normal, and she was so continuously dyspneic that she could not lie down with any comfort.

Labor began at term, and on examination it was found that a breech presentation, which had been corrected a few days before, had recurred. External version was again performed with ease; but almost immediately it was discovered that there was a prolapse of the funis. The patient was therefore chloroformed and podalic version was performed. On the introduction of the hand for the purpose of turning, the cord was felt to be pulsating vigorously, and the anterior foot was grasped without difficulty; but as traction was commenced it was noticed that the pulsations ceased. Delivery was completed as quickly as possible, but the child was dead. The sudden cessation of funic pulsations was explained by a tight knot that was found in the cord. It was evident that the child had, in some way, passed through a loop in the cord and that in performing version this was pulled taut.

The convalescence was very slow, any excitement increasing the rapidity of the heart action. The murmur became so faint that its presence was very difficult to detect, especially as the action was so rapid (134 to the minute March 3, 1902). The condition became more grave, so that it was necessary to confine the patient to her bed and administer cardiac tonics, and also to use local cold, in order to control the heart action. Under this treatment she has so far regained her cardiac equilibrium that the murmur can again be easily heard, being now diagnosed as a presystolic mitral. The attacks of palpitation have also, to a considerable extent, ceased. Any exertion, however, at once increases both heart action and palpitation; and the best that can be hoped for is a more or less bearable condition of chronic invalidism.

At my request Dr. D. L. Edsall kindly examined this patient with regard to her cardiac condition. His report shows the presence of distinct myocardial trouble, as well as of the endocardial condition referred to above. In brief, his report is as follows:

The area of cardiac dulness is very slightly enlarged toward the left and upward. There is a rhythmical irregularity in the pulse, in the cardiac impulse, and in the heart sounds. There is also a soft systolic murmur at the apex, which is transmitted to the axilla, without accentuation of the second pulmonic sound. The irregularity in the cardiac action, mentioned above, has the following characteristics: There is a succession of two, three, or four normal beats, followed by an abnormally long pause, during which there is a weak contraction, giving no pulse. This feeble contraction that occurs during the long pause is followed by a contraction stronger than any of the preceding. This cycle is then repeated. The view at present held with regard to this form of irregularity in the cardiac action is, as stated by Wenckebach, that it is due essentially to cardiac muscle weakness.

In a paper of this character it is evidently impossible to attempt to cover the whole subject of the inter-relation existing between pregnancy and heart disease, but there are a few points which are so important that a passing notice, at least, is demanded. I think that I am justified in considering both of the cases to be examples of the severe type of uncompensated cardiac disease. I believe that any careful doctor would be very anxious were a man to show such a condition of disturbed compensation as both of these women presented in their pregnancy. And yet both of them recovered from their confinement, and, indeed, passed through it, under careful watching, without any great difficulty. From the obstetrical standpoint both were discharged as cured, and, if they had been the usual type of hospital case, would have promptly disappeared. It has been my good fortune, however, to have been able to follow these women more or less closely, in the one case until the present time, and in the other, the first one reported, until she was killed by a street accident. It is thus forcibly impressed upon me that though, as I have said, they were cured in the sense of having recovered from the childbed, they were both doomed to a life of chronic invalidism.

This question—namely, the prognosis for the case after it has passed out of the hands of the obstetrician—is to my mind the most important one demanding our consideration. And, moreover, the outlook for these cases has been, even by men who have written upon this subject, but too little dwelt upon. Thus, in the series of statistics to be reported below, it will be found that

in most there is no mention made as to whether the strain of pregnancy and labor had any bearing upon the subsequent life of the patient. In other words, it is the man engaged in general medicine who is best fitted to speak of the after-results of pregnancy in relation to its effect on the heart. And statistics simply reporting a series of cases of more or less severe cardiac manifestations during pregnancy, labor, or the puerperium do not mean that the subject can be considered closed, by any deductions which may be drawn from them. Even in the severe types of loss of compensation it is rare at the present day to meet with a fatality during this period, but the question of the after-course of the case presents a problem of much graver import. Jess dwells upon the importance of this view and adduces a number of cases in its support; and Schlayer also calls attention to the rapid cardiac degeneration seen in some cases in later life, who during their pregnancy did not show any manifestations of increasing trouble. Feis, in speaking of the slight influence exerted by pregnancy and labor upon compensating cases of cardiac trouble, warns against the false impression which may result, and believes that if such cases be followed in after-life a considerable number will show resulting cardiac weakness. With this fact in mind he particularly urges that a repetition of pregnancy is, even in these well-compensating cases, to be warned against.

Another question, of theoretical rather than practical importance, is whether marriage should be permitted in the presence of heart lesions. The practice of any individual obstetrician, no matter how large, is not a sufficient basis for any very definite conclusions in this regard, since the occurrence of pregnancy in conjunction with heart lesions is fortunately not frequent enough to enable any one man to dogmatize on the basis of his individual experience. We are thus forced to form our opinion from a study of statistics as presented in literature; and, as is usual, we find some conflicting testimony. Thus, Schlayer unconditionally advised against marriage, as did also Berry Hart; while others, as Wright, Handfield-Jones, and Vinay, believe that if compensation has never been broken, and if the social condition of the patient is such that she can have good attention during her pregnancy, it may be permitted. With the opinion of these last-mentioned observers Feis likewise agrees, especially emphasizing the importance of the social condition as a factor in the prognosis. Jess and Leyden are inclined to permit it if

compensation is good and if the circumstances of the patient are such that she can have careful attention during her pregnancy; but they particularly urge against repeated pregnancies.

This somewhat conflicting testimony is easily explained if the reported mortality of different series of cases is considered. Thus Jewett, in his "Obstetrics," places it at 13 per cent, while Wessner reports a series collected from the literature with a mortality of 37 per cent. Schlayer states that he has found it to be 48 per cent; Lublinsky, 50 per cent; Leyden, 55 per cent; and Macdonald, 60 per cent. Berry Hart saw seven fatalities in a series of 18 cases.

On the other hand, Osler thinks that statistics as given are likely to cause undue anxiety in the prognosis; and Wright, in commenting upon Jewett's statistics and those given in the "American Text Book of Obstetrics," judges that they must have been compiled from a very severe series of cases—i.e., from a series of cases of women in whom compensation was greatly interfered with. Moreover, Muller believes that cardiac conditions do not badly influence childbearing; and this statement is upheld by a series of 4,000 cases reported by Wessner from the Berlin Frauenklinik, in which there was but one fatality due to cardiac conditions. This fatality was probably due, in great part, to a coexistent pneumonia. In this series there were 24 other cases noted that presented diseased conditions of the heart; none of them ended fatally. Still further evidence confirmative of this view is furnished by Schneider, who is able to report 2,000 cases in the Marburg Frauenklinik, among which there were 14 cases showing pathological conditions of the heart valves, with only one fatality as a result.

A factor to be considered in attempting to reconcile these statistics is the different significance of the various murmurs. Thus, as would be expected, mitral stenosis is to be placed at the head of the list, as being the most serious form of cardiac complication; while aortic stenosis, aortic incompetency, and mitral regurgitation follow in the order given. We may attempt to summarize, on the basis of the above statistics, as follows: Regarding the advisability of marriage for a woman that is the subject of some cardiac lesion, it should be stated that, no matter what the lesion, there is always some danger to be apprehended, even in those cases in which compensation is and always has been perfect; but that, on the other hand, since many cases under good care, or even without it, are able to bear several children

successfully, a conservative opinion, while not advocating marriage, will nevertheless be compelled to admit that, except in one form of valvular disease—viz., mitral stenosis—it is permissible. On the other hand, these same statistics teach us that if the case presents the lesion of mitral stenosis, or if, presenting any other lesion, there is, at the time of the examination, a lack of compensation or a history of one or more failures in such compensation in the past, marriage should be strongly discountenanced. It should always be stated that frequent pregnancies are a decided strain on a diseased heart, no matter what its grade of degeneration or local lesion, and should, therefore, be avoided. In making a prognosis in these cases it is well to remember the statement of Von Guérard, founded on the work of Martin's clinic. This observer reports that heart lesions formed the most unlucky complication of pregnancy, as seen in that service; and he even states that the maternal results were worse than those seen in cases of eclampsia or placenta previa. It is also to be remembered that, in making a prognosis, it is essential to consider not only the question as to the chances that a woman may have to recover from the immediate effects of her pregnancy, but also the results of the strain of parturition upon her future life.

With regard to the treatment of heart disease when it occurs in a pregnant woman, there is but one important point to be considered, namely, whether the termination of the gestation should be considered as a legitimate method of treatment. Aside from this the conduct of the case is essentially that of heart disease complicated by the necessity for hard work.

Since 1827, when Da Costa, as the result of the great benefit which he witnessed in a case of his own following a spontaneous abortion, became an advocate of the treatment of these cases by interference, there have always been a considerable number of physicians who have urged that the indication thus given by Nature should be followed in handling this complication, whenever the condition of the patient should seem to demand it. On the other hand, it has been urged by Gusserow and others that if Nature does not see fit to relieve the patient by such termination, artificial interference should not be invoked, since if it had been indicated Nature herself would have brought it about with better results than could be hoped for from artificial means. In addition we may note the opinions of Kleinwächter, Phillips, and Macdonald, who do not consider that an abortion can ever do good, and who therefore discourage its use; and the diametrically

opposite belief of Lusk, who would advise an abortion in every case of mitral stenosis, and of Von Guérard, who would perform it in any severe case of failing compensation.

The opinions just given represent the extreme forms of belief on this question and are diametrically opposed. In my opinion neither are safe guides in this matter, as allegiance to the teaching of Macdonald would, I feel sure, sacrifice the maternal life needlessly, while those who acted upon Von Guérard's precept would, without fail, be responsible for uncalled-for interference with gestation. Probably the safest position to be held by the obstetrician may be stated as follows: If a case presents symptoms of so grave a character before the third month is ended that life is threatened, and if these symptoms have, in spite of all medicinal measures, steadily grown worse, the question of the performance of an abortion may be considered; but—and this is very important—it is always to be remembered that the termination of pregnancy cannot be expected to accomplish a great deal at this time, as the uterus is so small that there can be no mechanical difficulty produced by the pregnancy, and that the only relief which its termination can accomplish will be the relief from the slight increased heart work.¹ This is, in essentials, the opinion of such men as Wright, Sears, Leyden, Schlayer, Schröder, and Feis, and seems to me to be in addition that which common-sense would advocate.

We now come to the consideration of the question as to whether the induction of premature labor will be of value to meet the disturbances of compensation met with in the latter part of gestation. This problem, more important than the preceding one, since, as a rule, the severe symptoms of failing compensation do not make their appearance until the latter half of pregnancy, has also had its enthusiastic advocates and bitter opponents. As nearly as it is possible to determine their position, it may be stated that Löhlein, Roesgar, Schneider, Leyden, and Sears are in favor of its production in severe cases, while Kleinwächter, Mac-

¹While the opinion of Breisky, that innervation disturbances consequent to pregnancy explain these early cases of compensatory failure, has been scouted by writers as only giving a new name to the problem, it nevertheless probably expresses in an imperfect way what the future will more fully explain. By exclusion it would seem as though there were no other reason assignable for the sometimes noted early cardiac breakdown, since, as has been stated, there can be no question of either pressure difficulties from uterine growth or any appreciable increase of cardiac strain to explain the loss of compensation.

donald, Wright, Von Guérard, Feis, and Schlayer must be considered as opposed. The last-mentioned authority, indeed, places it in the same category as a postmortem Cesarean section. Zweifel holds what may be called an intermediate position, in that while he questions whether much good results from it, he nevertheless will not advise against it.

As explaining, at least in part, the lack of agreement in the opinions offered above, it is to be remembered that the opponents of interference were necessarily influenced by the part played by sepsis in the production of the bad results which they note; and, moreover, it is undoubtedly true that, as the advocates of the method insist, the induction of premature labor is not to be considered as indicated after the patient has passed into *extremis*, since, as they emphasize, the danger of a fatal issue is by no means past when the child has been delivered.

Probably, in the light of the more recent statistics, the earlier mortality was to a certain extent due to the delay in resorting to the emptying of the uterus until the proper time for such a procedure had long passed. Finally, the belief, which was very prevalent, that an induced labor was much harder upon the woman than the spontaneously instituted process undoubtedly played a part in producing the disfavor in which interference was held. It is, of course, hardly necessary to note that at the present time there need be no hesitancy in the induction of premature labor, if the child is not to be considered, since improved methods of technique have rendered this procedure as safe for the woman as any other surgical operation. It is also, however, to be carefully noted that experience teaches the futility of this procedure except in properly selected cases. In other words, the mere fact of a loss of compensation in the latter months of pregnancy does not indicate the induction of premature labor, since no advantage can be hoped from its employment, unless there be reason for supposing that the cardiac difficulty is caused by the mechanical pressure of the uterus upon the heart and lungs. This was the dictum insisted upon by Macdonald and is as true to-day as when he wrote it.

One of the essentials to the understanding of the effect produced upon the diseased heart by pregnancy is to realize that the gestation itself exerts no specific influence, but that the heart acts as it would under the influence of any severe strain of a continued character. The other important point is to understand the result of this strain of childbearing upon the healthy heart. That

there is a distinct effect produced upon the normal heart in pregnancy is shown, as stated by Macdonald, by the development of accidental murmurs, as first noted by Löhlein; by the slowing of the pulse after delivery, to which sign attention was first called by Blot in 1862; and by the, at times, noted cardiac muscle degeneration occurring in non-septic cases, as well as by the knowledge of the increased mass of blood present at this time as a physiological condition.

For many years it was held that there was a decided hypertrophy of the normal heart in pregnancy; and while a number of investigators, among whom may be mentioned Fritsch, Löhlein, and Wessner, have denied this hypothesis, first advocated by Larcher¹ in 1825, there seems to be, as stated by Macdonald and Peacock, no other supposition tenable to which the increased power of the heart can be ascribed, unless it be that, according to Schlayer, there is a reserve force resident in the heart which enables it to meet the demands of this period. The decision of this question is an impossibility from clinical study, as the hypertrophy is probably only resident in the left ventricle to any appreciable extent, and even here is too small in amount to permit of its detection by any known clinical method. But at all events it can be stated positively that there is either an hypertrophy of the normal heart or else a reserve force resident in it, since in no other way can the phenomena of ordinary pregnancy and labor be explained. The balance between this hypertrophy or reserve force and the work demanded is, in the normal case, so beautifully maintained that no trouble arises; but when we study the heart weakened by muscular disease we find that such is not the case, but that, as in any case of prolonged exertion, there is a period of hypertrophy and then the stage of dilatation is reached. This dilatation, together with the fresh inflammatory lesions which may be engrafted on the diseased valves, explains the fact that the mere delivery often does not relieve from danger, and also explains in large measure the ill results which follow in a considerable number of heart cases.

The proper treatment of these cases during labor consists in the

¹Larcher's investigations were conducted upon cases which, as a rule, had died of puerperal fever, which explains the fact that he reports an hypertrophy of the left ventricle of from one-fourth to one-third above its normal size. Löhlein, on the other hand, based his investigations only upon cases which had perished from uterine rupture. The latter observer did not believe that there was any hypertrophy produced by pregnancy.

termination of the process as soon as possible by the application of the forceps as soon as dilatation permits, the use of chloroform, the avoidance of ergot, at least in the presence of an embarrassed venous circulation, and by the application of the sand pillow or a binder, tightened as the child is born, in order to prevent undue congestion of the abdominal vessels. Aside from these points, which should be considered as routine, there may arise indications for the use of oxygen and venesection in the more severe cases. The use of chloroform has been proved to be of the utmost advantage, and, if given only to the degree of analgesia, it is without danger even in those of the severer type.

There is one point which I feel should be insisted upon more vigorously than is usual in the after-treatment of these cases, and that is the importance of a prolongation of the period of rest much beyond that which would be considered sufficient for the case had it presented no cardiac complications. Not only is such prolonged rest essential to enable the heart to recover as nearly as possible the degree of compensation previously possessed, but also because of the probable slowness of involution due to the interference with the venous circulation. It should also be remembered as an additional reason for care at this time that the majority of fatalities from cardiac disease occur, not, as might be expected, during pregnancy or labor, but considerably later. The idea, therefore, that when a labor has been successfully completed the attendant may consider the worst danger as past is absolutely unfounded.

Finally, it is well to remember, in the management of the puerperium, that any case whose condition after labor is at all serious had better be prevented from the giving of her breast to her infant.

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TREATMENT OF GONORRHEA IN THE FEMALE.¹

BY

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In the treatment of gonorrhea many views are held as to the different parts most frequently affected, but the most logical seems to be the following: (1) urethra, (2) cervix, (3) vagina, (4) vulva, (5) rectum, (6) inguinal glands.

Urethritis.—Acute specific urethritis in the female is not usually treated as a distinct affection. The symptoms for which the patient presents herself—namely, frequent, painful, and burning urination—are so often attributed to “cold in the bladder” that, unless an examination of the discharge is made, the condition is often overlooked. If seen in the first forty-eight hours, when a microscopic examination shows an abundance of epithelial cells and few pus cells, which are not well defined in character, no cocci in the field, the gonococcus few in number and when seen are confined almost exclusively to the epithelial cells, the abortive form of treatment may be tried with very good results: argyrol (twenty per cent solution) used as an injection daily by the physician in charge and allowed to remain in the urethra for at least five minutes. At the same time the patient should use argyrol (five per cent solution) as an injection three times daily after urination. This line of treatment, if successful, will at the end of from five to seven days show no change in the appearance of the discharge, but on microscopic examination will be found an entire absence of the gonococcus, very few pus cells, numerous cocci and epithelial cells. Following this a mildly astringent injection of zinc and alum, of each three grains to the ounce, will dry up the discharge.

In cases seen after the first forty-eight hours, when the discharge is purulent in character and, on microscopic examination, consists almost entirely of pus cells in which numerous gonococci are found, few epithelial cells, and an absence of any

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other cocci, the use of a very strong injection will not materially diminish the discharge or number of infective organisms. A five per cent solution of argyrol, used as an injection four times daily, in conjunction with internal administration of a capsule containing oleum santali and balsam of copaiba, of each five minims, with one of the vegetable digestants, such as caroid or papoid, is used. While following this line of treatment, careful note should be made of the urine, in relation especially to its frequency, for a condition resembling markedly the well-known posterior urethritis of the male is likely to develop. In the female the urethro-cystitis includes more of the bladder surface, as a cystoscopic examination shows, than its prototype in the opposite sex. This condition is diagnosed by the increased frequency of urination associated with a previous urethral discharge and in severe cases by terminal hematuria. A good treatment in this stage is argyrol (twenty per cent solution), applied directly to the bladder wall, while capsules of copaiba and sandalwood are administered internally. This line of treatment is followed until the symptoms and the urine show the inflammation to be confined entirely to the urethra. When the examination of the discharge shows pus cells, small in size, few if any epithelial cells, and the gonococcus, when found, of a not well-nourished variety, then a slightly astringent injection of zinc sulphate and pulverized alum, of each fifteen grains, hydrastis one fluid ounce, distilled water four fluid ounces; or zinc sulphate and pulverized alum, of each fifteen grains, carbolic acid four drops, distilled water four fluid ounces, will help to dry up the discharge. After using this injection for two or three weeks the discharge will be seen to consist of pus cells, not well defined in character, and a few epithelial cells; the gonococcus is seldom seen, and when apparent its well-known distinctive features are almost obliterated. A more astringent injection may now be used to advantage, such as zinc acetate and tannic acid, of each twenty grains, distilled water four fluid ounces, which will, in most cases, be followed by an entire cessation of the discharge. If, after examination of the urine, "clap shreds" persist, the passage of a sound, with slight massage of the urethra per vaginam—to iron out, so to speak, all the mucous membrane—should precede the injection. When all the *Tripperfaden* are absent from the urine after a discontinuance of treatment for one week, and the patient has been allowed to use her own inclinations as to stimulants, and a menstrual period has passed with no return

of the discharge, the condition may be considered cured. A discharge continuing for eight weeks or more must be classed as chronic. This is the most common form of specific urethritis seen in the female.

Chronic urethritis in the female may be divided into three classes, from the standpoint of treatment anterior, middle, and posterior; the anterior embracing the "urethritis of Guérin," namely, gonorrheal infection of the follicles, especially those referred to as Skene's, and four or five other follicles found in the vestibule. Pure ichthyol, injected with a hypodermatic syringe having a blunt point, will quite frequently destroy the infection, obviate the tendency to abscess formation, and in most cases give permanent relief. If the above treatment is not successful, pure nitric acid or a Paquelin cautery, carefully applied, will entirely destroy the follicle. Middle urethritis—that portion posterior to Skene's follicle and extending to the sphincter—is the seat of chronic granular urethritis. The passage of a full-sized sound, with massage per vaginam, followed by irrigation with argyrol, beginning with a solution of 1:400 and increasing in strength to 1:100; or ichthargen, 1:2000; or silver nitrate, 1:4000, increasing in strength to 1:1000, will hasten a cure. The above treatment, continued two or three times weekly for from two to four weeks, followed by the use of a corrugated sound with Finger's ointment—potassium iodide, a drachm and a half; iodine, pure, fifteen grains; olive oil, a drachm and a half; lanolin, three ounces—inserted into the urethra and allowed to remain five to ten minutes, almost always results in a cure.

Chronic posterior urethritis is a form of vesico-urethral fissure characterized by frequency of urination, and is marked by pain, with tenesmus at the close of urination. Kelly's or Skene's endoscope, or a similarly constructed instrument, gives the best view of the condition. The infected areas may be hidden in the folds of mucous membrane, and unless these are opened out they may escape detection. The treatment consists of dilatation of the sphincter by the uterine dilator and the administration of urotropin, five grains every four hours, to make the urine as bland as possible. In severe cases the establishing of a vesico-vaginal fistula may be necessary, in order to give as complete rest as possible to the sphincter.

Cervical Gonorrhea.—The diagnosis of this form of specific discharge can only be made by the microscope. When a patient

is examined and urethritis, virulent in character, is present, an examination of the cervical discharge is obligatory. No symptoms usually manifest themselves at the beginning. After the condition has been determined the application of a twenty per cent solution of argyrol should be made to the cervical canal. The most useful syringe for the purpose resembles the deep urethral syringe of the male, but having no curve. The syringe should be inserted to the internal os and the liquid injected very slowly while it is withdrawn; from five to ten minutes should be consumed in the application. The above treatment should be made every day, when possible, until the pus cells do not show any gonococci and the epithelial cells begin to predominate in the discharge. Ichthyol and glycerin, twenty per cent solution, should then be used, taking five to ten minutes in making the application, always following the rule to inject only upon withdrawal of the syringe, and to take great care not to make a forcible injection. After the discharge is free from the possibility of infection, treatment should be stopped and an examination made at the close of the next menstruation. If, after repeated trials, no gonococci are found, the case may be considered cured. If a return is apparent a solution of silver nitrate, five to ten per cent, should be used. Ichthargen in some cases seems to act well. If, after trial of the above remedies, the virulence of the infection still persists, pure carbolic acid and curetting must be resorted to. When the gonorrheal infection has extended to the body of the uterus, the sooner a thorough curettement is instituted the better, especially in those cases where malposition of the uterus precludes the possibility of free drainage. Following the curettage, the entire uterine cavity should be swabbed out with argyrol, twenty per cent solution, in order, as far as possible, to reach any points of infection not removed by the operation and to kill any of the organisms which are situated deeper in the tissues. The after-treatment consists in the frequent application of argyrol in different strengths, depending upon the condition of the case, preferably by inserting gauze saturated with the application. Other solutions containing ichthyol and protargol, as well as absolute alcohol, act well in some cases. Formalin is advised by Menge in chronic cases, and is often followed by marked improvement, as is shown by Clark.

In chronic gonorrheal endometritis when the uterus is somewhat enlarged, soft, tender, and metrorrhagia is present, the internal administration of a pill containing ergotin, quinine.

and strychnia, or electricity to the fundus of the uterus, often expedites a cure.

Specific Vaginitis.—Specific vaginitis is a much-disputed disease, many doubting its existence and an equal number being sure of its presence. Numerous experiments have been made with the diplococcus of Neisser in the vagina. If placed in a perfectly healthy vagina of a married woman infection seldom occurs. In the infant subject to infection by dirty towels, or those infected by rubbing the gonorrheal penis over the genitalia of a female child—a bestial habit resorted to by a certain superstitious class, in the belief of curing the condition—vaginitis in its most virulent form occurs. In full-developed women the susceptibility to inoculation is slight, but there is a certain class of females in whom a chronic discharge is present from the beginning of menstruation, quite frequently accompanying some form of poor development of the reproductive organs—most commonly congenital split of the cervix with marked ectropium, thus keeping the vagina bathed in a constant discharge. The vitality of the mucous membrane being much reduced, gonorrhea is sometimes seen. Vaginitis in the infant is especially difficult to treat, particularly when the vaginal opening is very minute. Careful dilatation is necessary, for unless free drainage is present any hope of cure is out of the question. The special susceptibility of the almost embryonic mucous membrane and its poor recuperative power make it quite prone to a chronic condition. Weak solutions of boric acid, followed by argyrol, five per cent solution, and keeping the urine as non-irritating as possible, should be instituted in the acute stages. This treatment, if followed carefully for two to four weeks, will reduce the amount and purulent character of the discharge; then a mildly astringent irrigation of zinc and alum will diminish the discharge so that it is almost imperceptible, but if discontinued for a few days it will be followed by a prompt return. Small suppositories of ichthyol, inserted after touching up all ulcerated points with silver nitrate, one to two per cent, depending on their size, usually heal the infected areas. Gonorrhea of the vagina in older persons will permit of frequent douching with potassium permanganate, 1:2000, followed by argyrol, 1:100 solution, until the acute stage has somewhat subsided. The careful exposure of the vagina with an especially constructed wire speculum should be followed by swabbing the entire surface with argyrol, twenty per cent solution, and placing a small tampon containing a ten per

cent solution of argyrol against the cervix, with a larger tampon below to keep the vaginal walls apart. This should not be retained longer than six hours, followed by a cleansing douche of at least three gallons of hot water, then another quart of argyrol, 1:200. If the vagina becomes ulcerated, especially in the posterior vaginal vault—a condition fostered by an irritating discharge from the cervix—strong solutions of argentic nitrate, pure ichthyol, and the removal of the accentuating feature will almost always give permanent relief.

Gonorrheal Vulvitis.—This form of specific infection, commonly known as vulvitis, reaches its most pronounced types in the young. The different modes of infection and the age of the patient have a marked influence on the method of treatment to be instituted. In the infant, when the infection is due to dirty towels or direct infection, as in the vaginal cases from a degenerate idea of the curative property in an innocent infant, boric acid solution and liquor plumbi subacetatis diluted, equal parts, should be frequently used to cleanse the parts. A few layers of gauze saturated with the above solution may be kept between the labia. Rest should be instituted whenever possible, to avoid the tendency to bubo formation. After the acute stage has somewhat subsided, careful painting of the inflamed surface with argentic nitrate, two per cent solution, may be tried, followed by a dusting powder of pulverized boric acid and pulverized acetanilid, equal parts. In older patients the most important part of the treatment consists in complete rest and the induction of free drainage by the insertion of gauze saturated with argyrol, twenty per cent solution, between the labia majora, followed, after the acute symptoms have somewhat diminished, by painting the surface with argentic nitrate and a dusting powder.

Inflammation of the vulvo-vaginal duct usually accompanies this condition. The injection of pure ichthyol acts in two ways: by keeping the duct patulous, thus eliminating the predisposing tendency to abscess formation, and at the same time has a distinct germicidal influence. If the gland itself becomes infected, complete extirpation is the only procedure to be considered, as the source of numerous transmissions of the disease can be traced directly to this point.

Gonorrhea of the Rectum.—Rectal gonorrhea, which is more frequently caused by the backward flow of the infectious vaginal discharge, rather than through unnatural practices, manifests itself usually by pain and tenesmus. In the early stages a ten

per cent solution of argyrol combined with deodorized tincture of opium can be used to advantage. Not more than one ounce of this solution should be injected at any one time. The patient should be kept in a recumbent posture, in order that the application may be retained as long as possible. After the acute stage has subsided an astringent injection of zinc sulphate and pulverized alum, of each fifteen grains, bismuth subcarbonate three drachms, distilled water four ounces, is useful. If after this treatment the discharge persists, the examination of the rectum with an illuminated speculum will usually show granulating areas. To these argentic nitrate should be carefully applied, followed by an injection of alum and tannic acid.

Gonorrheal Bubo.—Gonorrheal bubo in the female does not seem to be as frequent as in the male, except in those cases where the vagina is infected. At the first evidence of any swelling of one of the glands in the groin the part should be, as far as possible, made immovable. An ointment composed of unguentum hydrargyri, unguentum belladonnæ, ichthyol (pure), and lanolin, equal parts, should be applied. This combination is spread on lint at least half an inch thick, is covered with wax paper, and over this a well-fitting pad of cotton is placed, and this is fixed by a moderately tight bandage. On top of the first bandage another should be placed, increasing with each turn the amount of pressure until three bandages have been used, each three inches in width and eight yards in length. This dressing may be removed every other day, examining the gland every time to see what progress the inflammation is making. If the above treatment has been followed for one week without any distinct improvement in the condition, the possibility of aborting or stopping suppuration is slight. This form of treatment has resulted in seventy per cent of cures in simple gonorrheal bubo. In tubercular infection of the glands removal is the only form of treatment to be considered. When the glands fail to react to the above line of treatment, hot applications, frequently applied, will at times cause abortion, even when fluctuation can almost be elicited. Failing in this, a clean dissection of the gland must be made, and the incision may then be closed as a clean wound. If the gland is necrotic and breaks down during the attempt at dissection, it must be lightly curetted and swabbed with pure carbolic acid.

PUERPERAL ECLAMPSIA.¹

BY

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AMONG the many dangerous and disastrous conditions that may befall the pregnant woman, none can compare with that of eclampsia. Its causative factor has as yet eluded our every endeavor at discovery. The scientific treatment of disease being based upon its etiology, it naturally follows that that of eclampsia must be more or less empirical. It is now generally conceded, however, that the eclamptic symptoms are dependent upon some form of auto-intoxication, and it seems quite certain that this condition is brought about, at least in the first instance, by insufficient metabolism and subsequently by deficient excretion. Statistics as to its frequency differ, but if we place it at one to three hundred we shall be, doubtless, approximately correct. It is a condition so rare that only those of large and extensive clinical experience can see many cases. And yet it is so uncertain in its appearance that any tyro may be called upon to treat a patient in its throes. Eclampsia is most common from the seventh to the ninth month. Of late very interesting and important work has been done along the line of observation on the thyroid. An enlargement of the thyroid appears about the sixth month in primiparæ and in the fifth in multiparæ. But by far the greater number of eclamptic attacks occur near or at the end of pregnancy, when uterine metabolism is at its height. In cases occurring post partum the attack may be dependent upon the very large increase of cell products which may be liberated by involution or by labor and thrown into the system in large, unmanageable quantities.

The function of the thyroid is to regulate metabolism, and the product of this increased activity is supposed in some way to neutralize the uterine and placental metabolic products. Lange's experiments, extending over a period of four years,

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have demonstrated the fact that this thyroïdal hyperplasia in pregnancy is physiological. In twenty out of twenty-five cases of pregnancy in which hypertrophy of the thyroid did not occur, albuminuria and convulsions developed. After a long series of observations it has been claimed that in eclamptic patients this normal enlargement of the thyroid does not occur. Lange found in his experiments that pregnant cats required larger thyroids than did non-pregnant for the maintenance of good health. In an examination of some 133 cases of pregnant women, decided enlargement of the thyroid occurred in all but 20, and in 18 of these cases that showed no enlargement the so-called "pregnancy kidney" was found; in all albuminuria was found, and 6 terminated in eclampsia; in 4 all the premonitory symptoms, such as severe headache, dulness of vision, etc., were present, and convulsions were averted only by prompt and vigorous treatment.

Herzfeld, in his study into the causation of this disease, has made some very interesting reports on the influence of pressure upon the ureters and upon it as an etiological factor. In his 81 fatal cases all showed pathological changes in the uropoietic tract, and in the majority of cases edema of the brain, and more or less changes in the spleen, liver, and heart, were also found. Chronic nephritis was found in 38 cases out of the 81, yet he states that the conditions found were by far too chronic to have originated during the pregnancy. In 22 per cent there was bilateral compression of both ureters, and he seems to regard it as a typical condition in eclampsia. Howbeit he finds the condition only in primiparæ, and in them only when the disease makes itself manifest at the *onset* of labor; never in multiparæ, or *post partum*, or in *primiparæ* in whom the convulsions occur early in pregnancy. This, then, would leave a very large percentage of eclamptics unaccounted for; and should this be the cause of the seizures in those cases mentioned by him, it would certainly go to show that in all others there must have been some other etiological factor.

It is now admitted that eclampsia is due to a toxemia, but just the nature of it has not yet been determined. Much interesting experimental work has been done by different observers along the line of the urine and blood, but as yet no very definite conclusions can be drawn from them; and inasmuch as most of them are absolutely conflicting, no definite importance from a

practical standpoint can at the present time be placed upon them. That the kidney in pregnancy is in all cases an exceedingly engorged and oftentimes overtaxed organ is certainly true; but that the mere mechanical cause in pregnancy is sufficient to account for eclamptic convulsion has certainly not yet been proved. So also has the effort to identify eclampsia with uremia gone down as "*not proved.*" Many eclamptics die who at the postmortem table do not present any of the pathological changes of uremia; and again, on the other hand, very many uremics die without ever having eclampsia. The consensus of opinion to-day, derived very largely from clinical experience, is most decidedly in favor of the toxemic theory. This being true, we should naturally look with confidence to the examination of the urine and blood to unravel the mystery of its etiology.

At first it was a source of erroneous conclusion that the urine of healthy individuals was more toxic when injected than was that of eclamptics; but when a thorough microscopical examination of the blood serum of those eclamptics was made it was found that the organs of the eclamptics showed, as a constant pathological change, multiple emboli. It was then that it became apparent that the toxins caused convulsions because they were in the blood and were not excreted by the urine. In other words, if the urine were highly toxic, then the blood serum would not be, because the toxic material would have been excreted and not retained to intoxicate the patient with its poisonous effects. It is very difficult for us, however, to examine the blood serum in each and every patient that comes to us; but we can and ought to make a detailed study of the urine in all cases that come under our care. We have in urea a chemical index as to the metabolism of the body, and one which may and ought to be utilized in determining the lack or the perfection of assimilation. We must, however, keep in mind that urea is not in itself a poison, for it represents always the finished product of metabolism. It is the *incomplete* urea in the blood that (in the form of toxins) doubtless causes convulsions. Therefore the diminution of urea excreted ought to be to us an indication that toxins are being retained.

When we have exhausted all means at our command along this line, the liver, lungs, skin, and intestines should receive their proper amount of attention, in order to ascertain whether

or not they are doing their full quota of work as executors. Jaundice is always a very grave symptom.

It is a good rule always to consider a pregnant woman constipated until proved otherwise by a competent nurse. The classical symptoms of this disease have long been recognized in the frontal headache, dimness of vision, and hebetude of mind, all of which are due to the existing toxic condition. There is no condition, perhaps, in the whole realm of obstetrics, where to be forewarned means to be forearmed as it does in eclampsia.

The experiments of Tarnier, Ludwig and Savor certainly show that the toxicity of the blood serum is increased in eclampsia, while, on the other hand, those of Charrin and Volhard seem to prove just as conclusively that it is not. We must, therefore, look to physiological chemistry; and should it isolate a definite toxic body or bodies from the blood of patients in this condition, it would do more to reach a definite and final solution of the etiology of this condition than anything else.

In the treatment of this most serious condition "masterly inactivity" certainly has no place. Every man whose practice is such that he may be called upon to attend obstetrical cases should have in mind a definite outline of the treatment he is to pursue when he meets such a case. To be sure, no one line of treatment will be equally successful in all cases; yet without some well-formed idea of treatment in his mind he would be not unlike a mariner on a boisterous and unknown sea without a chart or compass.

In the treatment prophylaxis stands pre-eminent. A healthy pregnant woman should pass not far from sixty ounces of urine in twenty-four hours with a specific gravity of not far from 1016 and containing from $1\frac{1}{4}$ to $2\frac{1}{4}$ per cent of urea. The diet should contain a very decided minimum amount of nitrogenous substances, and all food should be easily assimilated, leaving a minimum of waste. Such articles as beef, pork, mutton, veal, alcoholics, tea, and coffee should be on the prohibited list. In other words, the diet must be easily digested, readily oxidized, non-constipating, and non-toxic.

The strictest hygienic life should be enjoined. Out-of-door exercise, avoidance of all compression of the waist, frequent bathing, and the wearing of proper underwear are certain fundamental principles that go without saying. Too much stress cannot be laid in eclampsia upon liver insufficiency, for

many of the complications of pregnancy will be found to depend directly, we believe, upon faulty action of this organ, and that the kidneys, while they play an important rôle, will nevertheless be found to be largely secondary.

The emunctories, then, must be stimulated. Purge the bowels with Epsom salts or calomel, and keep them free with one or the other of the aperient waters, from time to time varying with some of the different vegetable laxatives. Use water freely. Let the patient drink freely on arising and retiring. Drink plenty of buttermilk. Even in summer woollen underwear should be worn to avoid chilling. See that the skin is doing its work, by giving hot baths. Injections of saline solutions are indispensable when quick action of the kidneys and skin is required. Fresh air and rest are absolutely necessary in the successful management of threatened eclampsia. It is not enough that we examine the urine for albumin in order that we may be on our guard, but the percentage of urea, the specific gravity, and the amount of urine must be determined in every case, and when all this shall have been done they will serve only as a clinical index of the amount of waste products that is being excreted. The patient's general condition must be taken into account. We do not believe that too much importance can be attached to the constipation attendant upon pregnancy.

In view of the many interesting observations made on the thyroid, one would naturally expect much from the administration of thyroid extract. Our own experience has been limited with this remedy, having used it only as a prophylactic. In this, however, we have been very much satisfied with the results. The drug must be fresh and absolutely reliable. If exposed to air and light, or if kept too long in stock, it becomes impaired in its activity. The action of the drug must be carefully watched, though it is ordinarily not a dangerous drug. Patients act very differently, and those suffering from goitre are very susceptible to its effects. In an eclamptic patient, symptoms of thyroidism are very easily induced. The effects of this treatment are in all probability due to the circulatory changes induced by it. The early and invariable action of the drug is acceleration of the pulse, followed in a day or so by a warmth and flushing of the skin. This is due, no doubt, to the enlargement of the arterioles. This in time is followed by increased perspiration, and finally by greatly increased diuresis. This is not observed

as an early effect, however, of the treatment. Whether the beneficial results of the thyroid treatment are attributable to its effect on the circulation, or to some more subtle action, we are not yet in a position to state, but that it seems to be a remedy of great utility is certainly apparent.

Nevertheless, the treatment of eclampsia is summed up in the word "elimination," and nothing will give such immediate results as blood-letting, followed by infusion or transfusion of saline solution. Venesection is to-day one of the lost arts. In this condition it relieves vascular tension of the brain and congestion of the lungs, subdues the laboring heart, removes urea from the system, followed by infusion or transfusion, which takes the place, first, of the amount of highly toxic blood that has been withdrawn, and, second, dilutes that which is still retained in the system. If the patient be anemic, do not bleed, but use the saline solution. The uterus should now be emptied. Too many reverse the order by emptying the uterus first and using the saline solution afterward.

If the aforementioned treatment has been faithfully carried out the following conditions will be observed:

First. There will be an immediate favorable change in the patient's general condition.

Second. The cyanosis, muscular twitching, and rigidity will have ceased.

Third. The pulse, which before was hard and bounding, will have lost its tenseness, and the attendant coma, be it ever so deep, will slowly but surely be lifted.

The rationale of the condition thus induced would seem easy of appreciation. The venesection seems to act as a factor in partially removing the cause of the convulsions, be that cause urea or any toxin which may be in the circulation. By the abstraction of a quantity of blood the system will surely get rid of a quantity of the poison that may be therein. It relieves the congestion of the brain and other organs which has been induced by the eclampsia or the condition existing previous to the seizure. The saline solution will supply the place of the blood withdrawn and will certainly serve to dilute the remaining poison in the circulation, and its stimulating action upon the kidneys and skin adds to its increased elimination by those organs. We are quite sure that if blood-letting, together with saline infusion or transfusion, were more generally employed

better results would be obtained in the treatment of eclampsia.

During convalescence the excretory organs must be kept active, the patient quiet and on liquid diet. All depressing influences must be avoided and a high saline enema should be given once daily. We have never been able to commend the free use of morphine, chloral, and bromide, that has been so much lauded by many in the treatment of this disease. They weaken the respiratory centre, suppress the process of oxidation, and certainly diminish the vitality of the cells. Hot baths, except for cleansing purposes, have always seemed to me to do more harm than good, for they seem to increase the irritability of the nervous system.

We must not be misled in our apprehension of the convulsive seizure, however. We have repeatedly seen a primipara and sometimes a highly nervous multipara thrown into a violent spasm as the head passed through the os or over the perineum.

HERNIA OF THE UTERUS; BOTH OVARIES—ONE OF THESE
BEING CYSTIC—FALLOPIAN TUBES, BLADDER, AND
RECTUM IN A SAC FORMED BY THE VAGINA.¹

BY

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C. B., a colored woman of about 57 years of age, was referred to me for surgical treatment. As is usual with this class of patients, the history of her case, as given by herself, was vague and uncertain. She had two children, most probably under the care of a midwife of her own race, but poorly equipped for her office. She is said to have had no trouble in her confinements, except that the labor was prolonged with the second child. In 1885 she sought the advice of Dr. Grimke for a tumor at the vulva that she could not return, who discovered what he regarded a procidentia of the uterus; this he reduced and put in a support. There was no history of hemorrhage from the growth or discharge purulent or otherwise. In 1895 Dr. Grimke saw her

¹ Read at the meeting of the American Association of Obstetricians and Gynecologists, Washington, D. C., September 16, 17, and 18, 1902.

again with a recurrence of the tumor, which he reduced and kept in place with a pad at the vulva. In 1900 she again sought advice because of the tumor, that had grown so large that it could not be returned.

In this condition she was sent to the City Hospital on August 15, 1900, and the case was turned over to me. The condition of the woman at this time had become most distressing because of the weight and size of the tumor, which had reached a volume nearly as large as an adult's head. It hung from the vulva, between her thighs, and reached midway to her knees. It was more or less pyriform in shape, with the base directed downward, the upper part being apparently attached at the inner aspect of the vulva. The surface of the tumor was more or less smooth, except at certain points where superficial ulcerations had occurred, probably from the friction of her clothing and locomotion. The outer surface had the naked-eye appearance of mucous membrane undergoing transformation into skin, and at points were to be observed a deposit and development of the black pigment of the rest of her body.

On palpation there was a sensation imparted to the touch of elasticity, with indistinct, deep-seated fluctuation of a heavy, semi-solid mass. Traced upward, the growth faded away at the vulvar orifice, and the finger could find no entrance into the vagina. On a careful examination of the surface there was no evidence of the os uteri, nor were there indications of the openings of the Fallopian tubes. On the anterior surface of the neck of the growth the meatus of the urethra was seen prominent and on a plane somewhat anterior to the vulva. By bimanual examination, with the left hand upon the abdomen and the fingers of the right hand in the rectum, it was discovered that the uterus was absent from its proper position, and the ovaries could not be distinguished. This examination was much facilitated by the fact that almost the whole hand could be introduced into the rectum, entering a cavity of considerable size. The wall of the rectum could be easily pushed forward in this examination, and advantage was taken of this to explore the growth from above. The fingers easily entered a well-defined ring, and through this could be introduced into the tumor from above. During this manipulation a fluctuating tumor was felt in the lower part of the abdomen and in the pelvis, and, when pressed upon, urine escaped from the meatus. A catheter introduced into the urethra did not follow the usual direction of that tube,

but passed downward into the tumor, its point being easily distinguished through the anterior wall of the tumor, midway from above downward. With these facts, elicited by careful and repeated examinations, a correct diagnosis of the condition of things seemed almost impossible. The failure to discover the cervix or os uteri negatived the idea that it was a procidentia of the uterus that had drawn down the vagina with it. The absence of the history of hemorrhages, and the failure to discover the orifices of the Fallopian tubes, seemed to render inversion of the uterus improbable. Under these circumstances it was determined to do a laparotomy, exploratory in character, to discover the nature of the contents of the sac, the opening of which communicating with the abdomen had been satisfactorily made out by the hand in the rectum. When the patient had been anesthetized and placed upon the table, another careful and final investigation was made. On this examination the sensation of deep-seated fluctuation at the lower and posterior aspect of the tumor was so positive that it was determined to make an exploration with an aspirator. The result of this puncture was to obtain a thick mucous fluid. I was satisfied that I had a cyst of some kind to deal with, and the plan of my operation and attack on the tumor was changed. I determined to lay open the sac and explore its contents.

Operation.—A catheter was introduced into the bladder, or rather into that portion of it that was contained in the tumor. This was done to mark the lowest point to which the viscus extended, in order that it might not be reached by the incision. A similar precaution was taken to protect the rectum, which, I felt certain, was included to a considerable extent in the tumor. An incision about four inches long was made in the median line on the anterior surface of the tumor; at a depth of about three-fourths of an inch the cavity of the sac was reached. This sac, which developed itself on our incision, contained little or no free fluid. The contents of the sac consisted of the bladder, in front and above, the lower level of which, easily outlined by the catheter, was first distinguished, uninjured by the incision. Below the bladder was the uterus, of normal size, on the right side of which were easily traced the broad ligament and Fallopian tube, with the corresponding ovary in a healthy condition. To the left of the uterus, extending to the bottom of the sac and upward toward the abdomen, upon which it encroached, was the left ovary, that had degenerated into a cyst of the size of a

cocoanut. The tube of the left side was also recognized. The rectum, greatly dilated, was found at the back of the sac. The broad ligament and tube were tied off first on the right side, the cyst on the left side was emptied of its contents, the attachments tied, and the uterus with its adnexa removed. A coil of small intestine escaped during this procedure, but was returned without damage.¹ The redundant portion of the sac was excised, the edges brought together vertically and sutured with chromicized catgut, an opening being left at the centre for drainage. Into this opening a gauze drain was introduced. So much of the vagina as remained was returned and a tampon placed to keep the parts in position and prevent the downward pressure of the intestines. The patient recovered from the operation and is now performing the duties of a house servant, her disability having been removed.

I believe the first step in the production of the remarkable condition found in this case was a lacerated perineum, resulting in the formation of cystocele and rectocele. The vagina became more and more everted, the cystocele and rectocele progressively protruding in the erect position incident to the occupation of this laboring woman. By constant attrition of the surfaces of the mucous membrane of the cystocele and rectocele, always in contact in their protruded condition, two approximated abraded surfaces grew together, and in this way the vagina formed a veritable sac. It was only a question of time, under the existing conditions, for the uterus to descend.

"Complete prolapse of the uterus is usually associated with complete prolapse of the anterior and posterior vaginal walls, together with corresponding portions of the bladder and rectum. When only one vaginal wall is prolapsed, it is usually the anterior, with corresponding portion of bladder, and in the large majority of cases this is the way in which uterine prolapse first begins: viz., prolapse of the anterior vaginal wall and bladder; second, dragging down of the heavy uterus, and then prolapse of the posterior vaginal wall and rectum." There are a few cases on record in which an anteflexed or retroflexed uterus of perfectly normal size was found prolapsed outside of the vaginal orifice, surrounded by the completely prolapsed vaginal walls with bladder and rectum. These latter cases are very rare and can only be explained on the principle that a very small uterus, whether either anteflexed or retroflexed, was gradually or forcibly drawn down by the prolapsing vaginal walls (Keating and

Coe). All the viscera except the pancreas (even the gravid uterus) have occasionally been found protruded partially or entirely, especially in cases of congenital deficiency of the abdominal parietes.

Hernia of the ovary, alone or with the tube, cannot be said to be very uncommon, but of hernia of the uterus the number of recorded cases is very small. Reference to treatises on gynecology develops the fact that this condition is not even mentioned by the great majority of authorities. The author of the article on uterine displacement in "Clinical Gynecology," by Keating and Coe, makes the following remarks: "Merely as a matter of completeness, I will refer to a very rare accident which must be logically classed under the head of uterine displacements, namely, a displacement of the uterus into the sac of an inguinal hernia. There are five such cases on record, one of which it was my fortune to see when assistant to Prof. Scanzoni at Würzburg in 1868; an additional interest was added to the case by the fact that the woman was four months pregnant, having probably become so before the uterus was thus displaced."

Gould and Pyle, in "Anomalies and Curiosities in Medicine," record 19 cases of hernia of the uterus quoted from Debierre. These 19 cases are found in C. Debierre's "Les Vices de Conformation des Organes Genitaux et Urinaires de la Femme," twelvemo, Paris, 1892.

Hernies de l'utérus.—Of 19 cases of hernia of the uterus, 13 have been observed in the inguinal region, 5 on the right, 7 on the left side. In a case by Roux (of Lausanne), which up to the present stands alone, the hernia existed on both sides at the same time. The uterus has been found twice in femoral hernia, only once in an obturator hernia, three times in umbilical hernia.

Generally the uterus is altered in its form and its situation is modified. Frequently it is accompanied by the ovary and Fallopian tube, and in cases where it enters an inguinal sac the intestine and the epiploon are often found with it. Doring, Ledesma, Rektorzic, Scanzoni have seen the pregnant uterus in an inguinal hernial sac; Leoland, Murray, Hagner, in an umbilical hernia.

In the cases of Maret and Roux, the hernia of the uterus, manifestly congenital, seems to have been produced by the shortness of the round ligament. But in the most common cases it seems that this organ is carried along by a previous

hernia of the ovary, or by the growth of the hernial sac at the expense of the peritoneum of the great ligament.

In a search of the whole medical literature to which I have been able to have access I can find only one case somewhat similar to that I have reported in this paper. It is reported by Dr. J. W. Cousins in an address on ovarian hernia and the protrusion of the appendages through rupture of the vaginal wall.¹ Prolapse of the abdominal or pelvic viscera through a rupture of the vaginal wall is a very uncommon accident and is scarcely referred to by any English writers. I am indebted to Mr. Alban Doran for this reference and to Dr. Brunton for the following notes: "L. B., aged 50, a tall, cachectic-looking woman, and the mother of several children, was admitted to the Portsmouth Asylum under the care of Dr. Bland in October, 1893, suffering from melancholia. Shortly after admission she was found to be laboring under severe prolapse of the uterus and rectum; the uterus was completely prolapsed and appeared externally like a large, sausage-shaped body covered by the vaginal wall. The rugæ were all effaced and some abrasions existed on the surface. The rectum protruded about four inches and was marked by many superficial ulcerations. Both organs were reduced by manipulation, but no amount of mechanical support was sufficient to retain them in position for any length of time in consequence of the persistent straining of the patient. A few weeks after admission the attention of Dr. Bland was called by the nurse to a large swelling that had come down during the night. On examination a fleshy and irregular mass was discovered protruding from the vulva directly behind the prolapsed uterus. On December 29 I was called to examine the case. The protrusion was found to be an ovary and tube in a condition of acute strangulation, which had escaped through laceration of the vaginal wall. The patient was in a state of great depression and her pulse was quick and feeble. She complained of great pain, and occasionally vomited. The protruding organs were returned at once, the mass was pulled down, secured at the neck by a ligature, and then cut off. The vagina was wiped dry, dusted with iodoform, and a gauze plug inserted into it. . . . The protruding organs gave very little trouble. . . . By the end of February the patient had made a good recovery. . . . Neither organ has been protruded externally for many months."

¹British Medical Journal, 1895, vol. II., p. 185.

I am induced to make a report of this case because of its exceeding rarity. In fact, the case seems to be unique, as, after an exhaustive and painstaking search of the National Medical Library, I have been unable to find any like reports.

ETIOLOGY AND PROPHYLAXIS OF LESIONS OF THE FEMALE
PELVIC TRACT FOLLOWING LABOR.¹

BY

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YEARS ago, when a student in attendance upon the lectures and clinics of Gaillard Thomas, I was much impressed by the remark that many cases presenting themselves at the clinic dated their illness from a certain labor. I am unable to say in what proportion of all cases this is true, but the last five hundred records of my case book show it to be about twenty-five per cent. It seems to me that this is an extraordinarily large number of accidents to result from a physiological act. In my earlier days I used to wonder whether women living in less civilized communities suffered in the same way. Later while living among the Mexican Indians I found them with the same injuries.

In considering the subject we will ask ourselves:

1. What are these accidents?
2. What predisposes the women to them?
3. How are they produced?
4. How can we avoid them?
5. What is the result?

When we speak of traumatism following labor most of us will think of two sets of injuries, namely, the cervical and perineal lacerations. While these are the ordinary and by far the most frequent, interesting, and avoidable, we have various degrees of laceration of the vagina, the labia minora and majora, the vestibule, the bladder, the rectum, the ureter, and the urethra, besides rupture of the uterus and sloughing of the cellular tissue in various parts of the tract. Next to these we must think of the

¹Read at the meeting of the American Association of Obstetricians and Gynecologists, Washington, D. C., September 16, 17, and 18, 1902.

bony structure of the pelvis and its ligaments. Then we have also injuries produced by ignorance, want of skill, or misapprehension, such as inversion of the uterus, removal of the intestine, etc.

Perineal laceration, commonly called relaxation of the vaginal outlet, occurs, in the vast majority of cases, to one or other side of the median line. The injury begins at the frenulum and forks upward, backward, and outward. Most frequently we find it in the right posterior wall, more rarely to the left in the vagina. This is often combined with slighter laceration on the left and right anterior portion, usually following in the passage of the greater diameter of the head. In considering this subject we must not forget the submucous laceration. The levator ani, the transversus perinei, and the deep pelvic fascia suffer most frequently from this source. At times we find no scar in the vagina at all.

One of the most serious conditions is when the neck of the bladder has been separated from its attachments to the pubes, thus predisposing to its prolapse.

When the laceration extends into the rectum we have the so-called complete perineal laceration. Fortunately this is a condition that can be remedied by one of the nicest operations in plastic surgery.

There are some forms of perineal lacerations accompanied by so much atrophy of the tissue that their restoration proves an impossibility. In these cases sloughs have formed as a result of labor.

Laceration of the vagina into the rectum above the perineum is rare. I have seen but one case, where the laceration began two centimetres below the cervix and ended just above the perineum. The patient was 40 years old and a primipara. Neither the cervix nor the perineum was injured.

Time does not permit me to speak of injuries to the bladder, ureter, and urethra.

Rupture of the uterus should occupy our attention for a moment. It occurs more frequently than is ordinarily supposed, and should be spoken of when we discuss the question, "How are these injuries produced?"

Lastly we should speak of the injuries to the bony structure and ligaments of the pelvis. While fracture of the pelvis has been recorded, it is most likely due to a diseased condition of the bone and very unskilful handling. The same can be said of

the ligaments. When an exceptionally large head is dragged through the pelvis we may have a separation of the pubic bones at their junction.

PREDISPOSING CAUSES.—Predisposing causes are not always easily made out, but their study is of the greatest importance, and a knowledge of them will at least foretell the danger, even if it does not succeed in preventing the injury. At times these accidents occur in women in whom we least expect trouble. At other times we look forward to their occurrence with certainty and then only dread the extent. While women in good health, who have been directed to a proper exercise of their muscular, urinary, intestinal, and cutaneous functions, will rarely be subjects for extensive injuries, such may occur as unlooked-for accidents. The sluggish woman with poorly nourished body and poorly developed muscular and osseous system is more apt to suffer.

(a) *The condition of the soft parts of the mother must be studied, as they suffer from diseases previous to impregnation and from conditions as produced during labor. Among the former we must class those cases that have suffered for years from chronic catarrhal endocervicitis with ectropium, causing an induration of the cervix. They are usually of a scrofulous habit, have been raised on pies, biscuits, bread, and tea. Physically they have always been of a sluggish habit, great readers of sensational novels, and of excited temperament. Now and then we find an abnormally small vagina, either congenital or caused by previous trauma. Scars of such character become serious obstacles to the expulsion of the fetus and cause further injuries. We must also consider the result of operations on the soft parts—i. e., the cervix, vagina, and perineum. As a rule no difficulty is experienced if there is a normal amount of scar tissue. This is quite different when such scar tissue is produced by tightening the sutures to such a degree that they have cut into or through the tissue. Varicosities and condylomata should not be overlooked. Narrow, high, and non-elastic perineum should be thought of in this respect, especially in the old primipara.*

The conditions produced during labor are mainly dryness of the parts, occasioned by premature rupture of the membranes, and tedious labor.

(b) *Conditions of the bony pelvis should next occupy our attention. The woman with a deformed pelvis is the subject of most unavoidable accidents. Such conditions are often not looked for until labor has progressed. Here we most frequently*

see the pelvis too small in all of its diameters. The rachitic pelvis predisposes to severe injuries because of the slowness with which the head enters the inlet and the rapidity with which it is forced through the outlet, not giving the parts a chance to relax. The flat sacrum is often the cause of as much injury as is a high, narrow symphysis. It would lead me too far to speak of the various other deformities and the abnormal inclinations of the pelvis.

(c) *Of the abnormal conditions of the fetus* the relatively large head should occupy our attention first. We frequently find that small women have large children with large and hard heads. The relative proportions of the fetal head and the bony pelvis cannot be too closely observed wherever there is the slightest danger. In fact, our attention should be drawn to this at our first visit in a confinement case. Not infrequently severe injuries are caused by excessive size of the fetal shoulder. You have all, no doubt, congratulated yourselves upon the successful delivery of the head when severe injuries followed the exit of the shoulder.

(d) We must furthermore speak of the *abnormal presentation* of the fetus. It is well to know that normal presentations, when they produce lacerations, do so, as a rule, in the greatest diameter of the head or shoulder. A possible cause may be the passage of the greatest diameter of the child's head. Of the abnormal presentations, the occipito-posterior, the face, brow, arm, and shoulder are of the greatest importance. This becomes the more so if the patient is a primipara and the birth a dry one.

It only remains for me to draw your attention, under this head, to the injuries produced by the transverse exit of the head from the vulva as a possible cause of injury.

(e) Under abnormalities *occurring during the progress of labor*, the most common is the early rupture of the membranes. The obstetrician is often to blame. While early rupture at times speeds the birth of the child, it is often the cause of a very serious tedious labor. Our examinations should be conducted so as not to injure the membrane. Imperfect flexions and extensions are causes not so often recognized as they should be.

Tonic contraction of the uterus and precipitate labor are fruitful sources of injury to the soft parts.

(f) *Operative interference* causes the most frequent and by far the most serious injuries. Premature interference, whether necessary to save the life of the mother or when unnecessary—

that is, for the convenience of the doctor—produces the most extensive injuries.

(g) Lastly, we have the *position of the mother during the birth of the child*. Children born while the mother is in a standing position are sure to produce injuries, most likely because of the great contraction of the uterus, the rapid expulsion of the child, and the slight inclination of the pelvis in that position.

HOW THE INJURIES ARE PRODUCED will be best understood by what has just been said. Additional explanation will serve to elucidate this matter. If we know what produces these we can easily avoid many.

The severe injuries are those produced by :

(a) *Too rapid extraction* of the fetus. When the soft parts are in normal condition this error in technique will produce comparatively little injury. When the soft parts are not properly prepared, or when dry labor has supervened, the injuries are most severe.

The indications for instrumental or forced delivery must be very closely drawn before one should attempt the extraction of the fetus before the cervix has retracted over the head. A dilatable cervix alone is not sufficient. There is rarely enough stress laid upon this very important consideration.

While laceration of the cervix most frequently occurs in the location of the greatest diameter of the head, instrumental delivery in a cervix *not retracted* will produce a laceration in almost any direction. The same can be said of manual dilatation of the cervix. Both operations should be avoided and considered dangerous. Though cases occur when they become a necessity to save life, I can only repeat what I have already said, that the indications should be closely drawn. When we come to speak of the results of these injuries we will understand the importance of what has been said.

(b) *Podalic version* is no infrequent cause of injuries. Many times we hear of version being accomplished when the forceps was used in vain and death resulted in two or three days. If autopsies were more frequent the obstetrician would find frequent lacerations of the lower segment of the uterus, reaching into the broad ligament under the peritoneum or even into the peritoneal cavity, which were never suspected at the time of the operation. Usually the head has been pushed out through the rent into the peritoneal cavity.

HOW CAN WE AVOID THESE INJURIES?—There is probably no

subject in the whole line of obstetrics upon which so much has been written, so little accomplished, and where there is so much to learn as on the prevention of perineal lacerations. Old and discarded methods have been reinvented and rediscarded. Thus I have in my possession some sixty articles on the prevention of perineal lacerations. Some of the injuries spoken of are unavoidable and we must therefore beware of slurring a fellow-practitioner, for what has happened to him to-day will occur in our own hands to-morrow.

In the occipito-anterior position it is of the very greatest importance that the nape of the neck be well under the pubes before the forehead is allowed to glide over the perineum. To insure this I have often made pressure on the perineum between the anus and coccyx. I would abstain from all rectal manipulations for this purpose, as I should not only fear injury to this organ, but also septic infection. At times I would advise to push the soft parts of the mother, anterior to the head, under the pubes and thus favor the birth of the occiput. The patient should be directed to cease all voluntary efforts at expulsion. This is much helped by talking sharply to the patient and by delivery in the lateral-prone position, as the activity of the abdominal muscles is thereby lessened to a marked degree. Elevation of the lumbar region, when the patient is on her back, so as to increase the inclination of the pelvis, is strongly recommended by that master of obstetrics, Prof. Schultze, of Jena. The occipito-posterior position presents almost unlimited chances for destruction of the soft parts at the outlet. The careful obstetrician can, in a majority of cases, avoid this position by early assistance, rotating the head so that the occiput will turn forward. Some fifteen years ago I presented this particular subject to the Essex County Society of New Jersey and advised rotating by pressure with two fingers, or, if that proves unsuccessful, with the forceps. Slow dilatation is of immense importance in avoiding perineal as well as cervical lacerations.

As many perineal lacerations are produced by the shoulder, it is important to guard that structure by lifting the head forward over the pubes and delivering the posterior arm first, while the anterior shoulder rests behind and above the pubes. If this cannot be done it will be wise to give the shoulder a more transverse position, so as to prevent the sharp edge of the shoulder from plowing up the perineum. In exceptional cases where it is found that the anterior shoulder is born first, it will be wise to retard

the posterior shoulder until the anterior arm has been born, thus reducing to a marked degree the diameter of this part of the fetus as it dilates the vulva.

When I spoke of separating the neck of the bladder from its attachments to the pubes, I had in mind the frequency with which the head is dragged against the pubes instead of in a downward and backward direction. As a rule I find that too many physicians pull at the forceps in a direction horizontal to the patient during the early stage of a forceps delivery. The dragging forceps should be directed backward, to be lifted forward as the curve of the pubes indicates and as the occiput slides over the pubes.

I now wish to speak of the AVOIDANCE of those injuries which have prompted the preparation of this paper. I have reference to those extensive lacerations of the cervix, base of the broad ligament, vagina, and perineum which have already been touched upon when I spoke of the application of the forceps in an *undilated and non-retracted* cervix. We must first bear in mind that the operation is an exceedingly serious one, and that the avoidance of the injury lies in the fact that it must never be undertaken unless the indication is a most important one. When we are forced to it the prognosis should be a guarded one and every means exhausted at a normal dilatation and retraction. At times it will be wise to incise the anterior or lateral lips of the cervix. If we can assure ourselves of the death of the child, craniotomy should be the choice. It will be wiser to do a Cesarean section than to force the forceps through an undilated cervix. The chances for the mother and child are better; especially is this the case when we consider the mother's future health. Manual dilatation often means nothing more than many and deep lacerations of the tissue. Podalic version has rarely, in my experience, improved the condition, and the likelihood of a dead child is much greater.

Lastly, we come to speak of the RESULTS OF THESE INJURIES. We must divide this subject into two parts, the immediate and the remote. The immediate is summed up by the likelihood of sepsis. The remote results are of the greatest importance and deserve our closest study. They are keeping the gynecologist busy. Too much stress cannot be laid upon the seriousness of some of these injuries, especially those produced by the forceps on the *unretracted cervix*. Some of the patients remain invalids for years, others never regain their health. The latter cases are

those where there is great destruction of the cellular tissue in the base of the broad ligament and beneath the vagina. I can assure you that this condition is much more frequent than is ordinarily supposed and very serious to the well-being of the individual. Those who have been visitors at my clinics know how easily I can foretell from the injuries the character of the labor the patient has undergone. When we examine the woman months afterward we find in the severe cases such a condition as this: The vulva gapes. There is hard, sclerosed tissue about the perineum and on both sides of the posterior wall of the vagina. The vagina seems short and small, its walls hard, rigid, and fixed, and the mucous membrane thin and atrophied. A scar extends from the lacerated perineum up along one or the other side of the vagina to the cervix. This scar often fixes the vagina to the pelvic bones. It extends into the cervix, which is drawn far to the side affected by the atrophic cellular tissue at the base of the broad ligament. The cervix itself will be found gaping. The laceration extends high up into the cervix, on one or both sides, so much so that no uterine tissue is felt in the angle of the gap.

The history of such a case is usually as follows: The patient is a primipara; was in labor but a few hours, possibly eighteen or twenty hours; the membranes have been ruptured early or ruptured spontaneously. Contractile pains have not been severe, but it was thought wise to terminate labor and forceps was applied with difficulty. It is now discovered by the accoucheur that he had a very severe case on hand and he calls in a friend to help him out. There was an early, abundant flow of blood from the vagina. Vigorous and alternate activity on the part of the obstetricians results in delivery of what is found to be a stillbirth. If the mother avoids sepsis she is fortunate. She is never well again. No operation or set of operations will help her. After years of suffering some few regain fair health.

With the woman who has been so unfortunate as to have a separation of bones at the symphysis pubis, loss of the power of locomotion for want of fixation of the pelvis is the predominant symptom. It has been my good fortune to see several such cases, and I always considered it quite pathognomonic to find the patient supporting her trunk with the hands resting on the thighs. This has invariably led me to look for the depression in the symphysis. The women have all eventually regained their health. The old authors have recognized this difficulty and considered it a serious injury.

The object of my paper has been to draw your attention to the one particular and most mischievous injury, and if that has been accomplished my endeavor has been of some use to you. It is the danger of applying the forceps to the head before retraction of the cervix.

RUPTURE OF THE URINARY BLADDER.¹

BY

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RUPTURE of the bladder may involve one or all three walls of the viscus. A rupture is either intraperitoneal, involving the peritoneal covering; extraperitoneal, involving a portion of the bladder not covered with peritoneum; or subperitoneal, the mucous and muscular walls being ruptured, leaving the peritoneal covering intact; this latter variety is very uncommon.

The most frequent location of rupture is in the upper and posterior portion of the bladder, and this may be accounted for by the distended bladder lying in contact with the promontory of the sacrum, force applied in front pressing the viscus against this bony point. The bladder wall is also thinnest at this location. Most of the ruptures located anteriorly are complicated with fracture of the pelvic bones. The rent is usually linear, with ragged and everted edges. There is usually but one wound of the bladder; yet cases are on record where several rents have been found. There is greater liability of rupture when the bladder is distended, often a comparatively slight traumatism causing this lesion.

Atony, sacculation, and ulceration of vesical walls are predisposing causes. Several cases of rupture are reported where the bladder wall was found hypertrophied. In about half the cases reported the bladder wall was normal. The direct cause of rupture is usually some form of external violence applied over the region of the bladder. Rupture by *contre-coup* has occurred by the patient falling from a height and striking on the feet or buttocks, even with a comparatively empty bladder.

¹Read by title before the American Association of Obstetricians and Gynecologists, September 17, 1902.

Violent straining during defecation, micturition, and parturition has been known to produce rupture of the bladder. The lesion is more common in men than in women in a ratio of ten to one. Rupture has occurred in over-distension from injection of fluid preparatory to a suprapubic operation, and during etherization with the bladder already distended.

The symptoms of bladder rupture are: shock, pain over hypogastrium, desire to frequently micturate, inability to void urine or possibly a few drops mixed with blood. The face is pale and anxious, pulse rapid and feeble; clammy perspiration; abdomen becomes distended; temperature rises; delirium; coma and convulsions may ensue. If the patient rallies from shock, peritonitis or septicemia may follow. Infiltration of urine may become very extensive, involving the scrotum, thighs, abdomen, and back as high as the scapular region. The patient frequently says he "felt something give way inside the belly," or that he suddenly felt relief from a previously over-distended bladder.

Catheterization is of special value. If, when a catheter is passed, no urine or a very small amount is collected, when we know the patient has not micturated for several hours, we may suspect rupture. Injection of fluid into the bladder which does not return, or if a greater amount returns than was injected, are also diagnostic signs of rupture. Keen recommends the injection of air; if a rupture be present the abdominal cavity becomes distended. There is rarely any external evidence of contusion found over the abdomen. In some cases the patient has been able to void a considerable quantity of water, even after the first catheterization. One should bear in mind that the abdominal cavity may contain considerable urine and that compression of the abdominal muscles may force urine through the bladder and urethra. Coils of intestine have occluded the rent in the vesical walls in some instances, and symptoms of strangulation of the intestine have been most prominent. Adhesions about the rupture have protected the general abdominal cavity in some cases.

The histories of a number of cases show that the presence of clear urine in the bladder is not evidence that the viscus has not been ruptured. A case in point occurred at the Rhode Island Hospital some years ago. Clear urine was drawn by catheter at frequent intervals and there seemed to be considerable force to the stream. The sudden event of blood in the urine after an injury may lead one to suspect the presence of

rupture of the bladder wall. Yet the urine may be tinged with blood when we have merely a contusion without laceration of the bladder wall.

Early diagnosis is most important; then comes the determination of whether the rent is extra- or intraperitoneal, and, if extraperitoneal, the extent of infiltration. Digital examination of the bladder wall by a small median incision has been practised by some surgeons. In a series of 315 cases, only 16 per cent recovered; of 21 laparatomies for intraperitoneal ruptures, 10 were successful. I should advocate early laparotomy in obscure cases, whether I thought they might be intra- or extraperitoneal, so as to determine the location of the rent or the extent and position of infiltrations, that the rent may be sutured or suitable drainage employed. The rent should be closed with interrupted, fine silk sutures, the ends cut short. The edge of the mucous coat should be inverted and stitches should include only peritoneal and muscular coats. The sutures should not be more than a quarter of an inch apart, beginning and ending some distance from the ends of the wound, as it is at these ends leakage usually takes place. The bladder should be moderately distended with fluid after closing the wound, and additional sutures introduced if the wound leaks. An air bag in the rectum may aid in pushing the bladder forward and expedite the introduction of the sutures. A soft, velvet-eyed catheter is introduced just within the bladder; a rubber tube attached to the catheter, the other end being dropped into a bottle, partially filled with carbolyzed solution, placed under the bed, thus siphoning the contents of the bladder. The abdominal cavity should be washed out with a normal salt solution, one-tenth of one per cent. The vesical and abdominal walls may be stitched together as a last resort, where the rent cannot be sutured.

Thorough drainage of extravasated urine in extraperitoneal rupture should be resorted to, besides drainage of the bladder by a retained catheter or perineal wound. Kraske's operation for removal of the coccyx has been done to more thoroughly drain the posterior portion of the pelvis. Cabot advocates abdominal section in both intra- and extraperitoneal ruptures, that a better knowledge may be obtained of the location of the rent and of the best position for drainage.

Early laparotomy, which in itself has a mortality of from 1 to 3 per cent, should be practised in not only every known case of rupture of the bladder, but in the doubtful cases.

The following case may be of interest: Mr. J. F. McC., aged 44, entered my service at the Rhode Island Hospital March 21, 1901. During the past year he has been treated by his family physician for chronic nephritis; albumin, hyaline and granular casts being present in the urine, which has been frequently examined. One week ago, while attending a dinner with some congenial friends, he sat on the arm of a Morris chair. The arm gave way, allowing one of the rungs to pass through the perineum a little to the left of the median line, penetrating the bladder. On rising he withdrew the rung, which he found projecting from the perineum. He bled profusely and was taken in a carriage to his family physician, who checked the hemorrhage with ice and pressure. He was then treated at home for one week.

On entering the hospital his pulse was elevated, he was delirious and suffered a great deal from vesical tenesmus. Under oxygen-chloroform anesthesia a perineal section was performed. The bladder was found distended and filled with putrid clots of blood mixed with urine. A remnant of his trousers, which had been pushed into the wound by the rung, was removed. Vesical irrigation and drainage was carried out, and a solution of formalin followed by normal saline proved to be the best solution for irrigation. Urotropin was freely given and it seemed to be of great benefit.

May 1, 1901, he was discharged to return home. He now looks the picture of health, but examination of urine shows a small amount of albumin and casts.

259 BENEFIT STREET.

TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, November 20, 1902.

The President, GEORGE ERETY SHOEMAKER, M.D., in the Chair.

PATHOLOGICAL LESIONS IN GONORRHEA.

DR. JOHN G. CLARK.—When I received the invitation to say something upon this subject my understanding was that my remarks should take more the form of general discussion.

In the more recent literature relative to the pathology of gonorrhea there is little that is novel, and the classical work

of Bumm, Wertheim, Neisser, and others stands practically unchanged, although in some respects not altogether unchallenged.

One marked peculiarity of the gonococcus is that, notwithstanding the fact that it is the most difficult of organisms to cultivate in artificial media, it is nevertheless one of the most tenacious, long-lived, and luxuriant growers in its favorite habitat, the mucous membrane of the genito-urinary tract. The ordinary pyogenic organisms have a self-limitation, in that their own toxins tend to destroy them after their growth has reached a certain stage. This peculiarity, however, does not apply to the gonococcus, for it will either grow abundantly or remain latent in the tissues almost indefinitely. Another peculiarity of the gonococcus is that it is not, as a rule, a general pyogenic organism; it is specific, in that it produces its lesions chiefly in the genito-urinary tract and, except in rare instances, appears harmless when it is deposited upon ordinary skin or peritoneal surface. The streptococcus, when rubbed into the tissues in any part of the body, will usually produce infection with its characteristic train of symptoms; the gonococcus, however, although rubbed into the skin surface very vigorously, in the absence of moisture will produce no lesions other than slight irritation. Its favorite site for growth, therefore, is a mucous membrane covered with cuboidal or columnar epithelium; it does not penetrate, except under the most favoring conditions, pavement epithelium.

Another theory which one might deduce from the culture peculiarities of the gonococcus is that, therapeutically, it should be easily managed; to the contrary, however, it is most difficult to eradicate when it once becomes fixed as a chronic process in a mucous membrane. In the external genito-urinary tract, the urethra, vulva, vagina, and cervix, it may be readily dealt with by hygienic and therapeutic measures; when, however, it once reaches Bartholin's glands, the uterine mucosa, or the Fallopian tubes, it is well-nigh impossible to cure by other than radical operative measures.

One of the points which are at present in contention concerns especially the penetrating power of the gonococcus. By far the largest number of observers claim that it is always superficial in its growth, merely insinuating itself underneath the superficial layers of epithelium, and seldom, or never, penetrates the underlying connective tissue and muscular structures. Wertheim, of Vienna, however, is inclined to take issue upon this point. In a recent report by one of his assistants, gonococci were found in the depths of the muscular structure of the Fallopian tube. It must be said, however, that even Wertheim has only found this in comparatively few cases, notwithstanding he ventures the opinion that this penetration of the organisms into the deeper-lying tissues occurs more frequently than is detected on microscopic section. Bumm, who has been the chief champion of the other side of the question, claims that the gonococcus is always

superficial in its growth; that the individual organism multiplies, forming a colony on top of the superficial epithelium, and that then they work their way down between the epithelium and become hidden underneath the superficial layers. There is a tendency for the overlying epithelium to be destroyed and cast off, and for the character of the cells which subsequently grow over these diseased areas to be changed, the columnar becoming more of the flat or pavement type. If this latter theory is to be accepted, it would seem to be one of the easiest therapeutic tasks to so apply remedies to the diseased endometrium as completely to eradicate the disease. On the contrary, every man who has dealt with these cases knows that it is almost a hopeless task to attempt to cure gonorrheal endometritis by therapeutic measures. In the urethra, vagina, and cervix the disease is self-limiting and tends to get well of itself. These, therefore, are the cases which give little or no trouble and many times do not even come under the observation of a physician.

Another peculiarity of the gonococcus is that, notwithstanding the fact that it may be carried back from culture to culture until it is almost entirely robbed of its specific action, yet when planted upon a mucous membrane it will at once develop the most virulent specificity, producing intense inflammation of the purely gonorrheal type. If, therefore, I were to summarize the chief peculiarities of the gonococcus I would say:

1. That it requires a very carefully prepared artificial medium for its growth and can only be cultivated by observing the greatest care, whereas upon its favorite sites it grows luxuriantly.
2. That it does not tend to produce general but local infection.
3. That it is superficial in its growth and does not tend to penetrate the underlying submucous tissues.

These facts stand in opposition to the clinical observations of these cases, viz., that gonorrhea, when it once reaches the hidden mucous surfaces, is the most intractable of diseases so far as its ultimate cure is concerned; indeed, the sweeping statement of Noegerrath, that "once infected, always infected," seems to hold good so far as the mucous membrane of the uterus and the epithelial lining of the Fallopian tube are concerned.

DR. WILLIAM B. SMALL, by invitation, read a paper on

THE TREATMENT OF GONORRHEA IN WOMEN.¹

DR. JOHN B. SHOBER.—I was much interested in Dr. Clark's remarks in regard to the pathology of gonorrhea, and have nothing to add except in the way of suggestion. We all recognize the difficulty in curing gonorrheal affections. This difficulty seems hard to explain, when we consider that the gonococci have an apparently superficial habitat. But it has been shown that the gonococci penetrate to the membrana propria, and not only infiltrate it and occasionally penetrate to the underlying muscularis, but they also migrate between the membrana propria and

¹See original article, p. 57.

the overlying epithelium. This overlying epithelium is not immediately destroyed, but retains its normal power of resistance to the action of the mild germicidal fluids we are in the habit of using. The epithelium thus acts as a shield for the underlying gonococci, and not until they have caused sufficient reactive inflammation to cause a destruction and shedding of the epithelium do the gonococci become really superficial and capable of being destroyed by the ordinary topical applications. Sometimes the tissues are able to resist the toxins of the gonococci and they become encapsulated and lie dormant until, liberated by a subsequent traumatism or inflammation, they at once light up another attack of gonorrhea. This is the explanation of the saying, "Once infected, always infected."

The treatment advocated by Dr. Small is excellent and, when capable of being faithfully carried out, will doubtless rapidly cure the majority of cases. I would question, however, the propriety of allowing these patients to inject their urethras, on account of the danger of infecting the bladder. It has been my experience that in the absence of bladder infection the urethra will take care of itself and needs no topical treatment, providing the proper internal remedies are being taken. When the bladder, usually the trigone, becomes infected, I depend upon instillations of the various silver salts. Inasmuch as gonococci cannot live in an alkaline medium, as a preliminary measure I always cleanse the vagina, the vaginal vault, and the cervical canal with a strong alkaline wash. Lime water has given me satisfaction. I would like to ask Dr. Small whether he has found the local use of methylene blue of value in these cases. There is one important point which I think has not been referred to to-night. In chronic cases the vulvo-vaginal glands are usually infected. This may be recognized by the so-called gonorrheal macula which surrounds the orifice of each duct, and by the possibility of squeezing a drop of pus from each orifice. It is important in these cases to split the glands open and thoroughly cauterize them.

DR. R. C. NORRIS.—I have nothing to add to the discussion based on bacteriological studies of this subject, but I should like to cite my experience with some of the methods of treatment. Some years ago, when I had a large dispensary service and my private patients were not of the same class as at present, I saw a great deal of gonorrhea among women. I have had considerable and satisfactory experience with the relatively recent silver preparations, and use now in my routine office work, even in private practice, ichthargen with glycerin for the tampons, no matter what the patient's station in life. The newer silver preparations I have found of considerable value. I have tried five and ten per cent solutions of protargol instead of nitrate of silver for the prevention of ophthalmia. My conviction is that it is not as efficient as the two per cent solution of silver nitrate originally recommended by Credé.

Regarding the question of curettage for acute gonorrheal endometritis, I have given that up. While on theoretical grounds it seems to be good, in my own experience it has failed to do good and in many cases it has done harm. Within a month I have operated on two cases which had been curetted in the acute stage of infection, and I had to remove pus tubes in both in spite of curettage. The individual's power of resisting the gonorrheal organisms, and the difference in virulence of gonococci, play an important part in the results of any treatment. Some cases are so virulent and some people so vulnerable that curettage and applications will not destroy all the infection.

To split open and cauterize Bartholin's glands is a proper thing to do. Such a wound will be completely disinfected and Nature will promptly repair it. Scraping away the endometrium lessens its power of resistance against the organisms not removed from the deeper tissues and the depths of the utricular glands, and makes the entire cavity of the wound more vulnerable; and if our drugs applied after thorough curettage can be efficient destroying agents, which I doubt, we can use solutions sufficiently strong not to destroy the epithelium, but which will reach the germs almost as thoroughly and without the dangers of the curette. If we leave one or two germs that our curettage and cauterization have failed, and of necessity will fail, to reach, we have not achieved perfect results from both treatments. Theoretically I cannot believe in the curette for these cases. Practically I have found it of little value and sometimes very harmful. The application of the silver preparations, with moderate dilatation of the cervix to insure thorough application, seems to be less harmful, quite as efficient, and the after-effects are not so grave as after curettement. Certain areas, such as Skene's urethra and Bartholin's glands, are best treated surgically. The endometrium, from the viewpoint of our discussion, should not be so roughly treated. I know of no surgeon who would curette the male urethra and expect to improve gonorrheal urethritis.

DR. CLARK.—Dr. Norris has largely voiced my sentiments relative to the curette. I have felt for a long time that no treatment is more often misapplied and does more harm than the use of the curette in gonorrheal cases. When gonorrhea has become fundal—returning to Noegerrath's statement—I might say that "once infected, always infected." A case showing how difficult it is to eradicate the diseased endometrium with the curette comes to my mind. About a year ago, in a patient with gonorrheal pus tubes, I excised the Fallopian tubes by wedge-shaped incisions into the fundus. Through these openings I curetted thoroughly and applied formalin solution. The patient's discharge subsequent to the operation was lessened materially. Since then it has recurred in even a more profuse form, and only three weeks ago gonococci were again abundantly obtained in the pus. So far as the curette is concerned, I feel that only in the most chronic type of cases with the tubes already infected, as a final

resort and not with great hope of cure, we may perhaps use the curette. The results claimed by Krönig and Menge from the direct application of formalin are remarkably good.

DR. STRICKER COLES.—I have nothing to add, except that I would like to mention the occurrence of gonorrhea in pregnancy. Last year I had three severe cases along in the latter months of pregnancy. I used nitrate of silver and ichthyol, and then afterward Churchill's tincture of iodine. In all of the cases the result was good. All of the children were born without any ophthalmia. I did not use Credé's method, but simply washed the child's eye out with boracic acid solution. In one case I was very much worried because the discharge did not stop. A douche was given before labor and the child was born without ophthalmia. The gonorrhea had no effect upon the puerperium or on the child.

DR. JOHN C. DA COSTA.—If the gonococcus is confined entirely to the mucous membrane, how is it that we have stricture in old cases?

In regard to Dr. Small's statement that "we don't see many acute cases of gonorrhea except in the hospital," my experience is that most of the hospital cases are chronic. In the acute cases I have found the older treatment of value, viz., to treat inflammation of the mucous membrane in the urethra just as we treat inflammation of any other mucous membrane, in the beginning by very mild applications. The one I like best is the acetate of zinc, not more than two or three grains to the ounce. I think you can prevent the infection going into the bladder by using either methylene blue or urotropin, and do not remember any cases of the infection extending to the bladder in which those drugs were given. The objection to methylene blue is that it discolors the urine for ten days or two weeks and exposes the patient to criticism. When the case is chronic I swab the urethra out with a solution of hydrastis. It hurts, but it cures. That is for urethritis. For specific vaginitis I use sixty grains to the ounce of nitrate of silver solution. This can be neutralized by afterward using a strong salt solution. Ordinarily in old chronic cases one or two applications at intervals of a couple of days will cure. Where the gonorrhea has extended to the cervix I do not agree with Dr. Norris. I do believe in using the curette in the cervix. When it gets to the body of the uterus I do not use it. I have found it better to dilate and swab out the entire interior of that uterus. I have used various applications, but have not been so fortunate as Dr. Small with the silver preparations. I have gone back to the old preparations. Another remedy not mentioned is the bichloride of mercury—the old corrosive sublimate. If you have urethritis you can prevent involvement of the vagina by the use of the bichloride of mercury, 1:2000, but care must be exercised in its use. In two unfortunate cases in which I used 1:2000 bichloride the whole mucous membrane of the vagin^e sloughed off. If a strong preparation

of the bichloride is used, something must also be used to neutralize or modify it—as, for instance, following the bichloride douche by one of boric acid or common salt.

DR. JOHN H. GIRVIN.—I want to mention one practice I have made in the treatment of these cases—that of using some mild solvent solution first. In the early stages I have found a weakened Dobell's solution useful either as a swab or spray; and in the later stages, after using the mild solvent, I use very strong solutions of nitrate of silver or pure carbolic acid. But I believe if we use these solutions we must use them ourselves and at frequent intervals and persistently. Also in chronic cases I have seen benefit result from the use of tampons covered with zinc or boric acid ointment.

DR. SMALL (closing).—In answer to Dr. Shoemaker, I mentioned the use of the argyrol as a douche in strengths from 1:200 to 1:400. The usual injection is a twenty per cent solution of about half a drachm. I have not used the methylene blue in late years on account of the coloration of the urine. I think in every case posterior urethritis is one of the most marked symptoms. I believe it is held by a good many authorities that the whole bladder is not infected by the gonococcus. I advise the use of hydrastis in injections in the later stages. I use argyrol in preference to nitrate of silver because it is an albuminate of silver containing twenty per cent of free silver, much less irritating than silver. Dobell's solution I have found very useful. Curettage has been so thoroughly spoken of by Dr. Clark that it needs no further consideration.

DR. CLARK (closing).—In answer to Dr. Da Costa's question relative to stricture, I would say that this sequel of gonorrhea seldom occurs in women, although rather frequent in men. In fact, I have never seen more than three cases of urethral stricture of gonorrheal origin in women. As to the cause of the stricture, it is not necessary to assume that the gonococcus actually invades the connective tissue underlying the mucous membrane of the urethra. Around every point of local irritation there will be a marked infiltration of the underlying tissues with round cells and leucocytes. This is always the case when there is a local nidus of chronic gonorrheal infection. The gonococcus does not actually invade the underlying tissue, but sets up an underlying inflammatory zone, which leads ultimately to the production of new connective tissue, and this in turn shrinks sufficiently to produce a stricture. While, as I have stated, the general opinion is that the gonococci do not penetrate the deep underlying tissue, out of deference to the careful work of Wertheim, who has reported instances to the contrary, the subject must be carefully reviewed in the future. Only by making accurate serial sections of the diseased areas, which must be carefully stained for bacteria, will it be possible to definitely settle this question.

Dr. WILLIAM R. NICHOLSON presented a paper on

PREGNANCY COMPLICATED BY SEVERE HEART LESION.¹

Dr. R. C. NORRIS.—Dr. Nicholson has brought out all the points practically that we are familiar with at the present time. Aside from the mechanical pressure, which reacts unfavorably upon the heart, I think a pregnant woman with heart disease should be closely watched from the standpoint of toxemia. That the heart can be the organ to bear the strain of a toxemia was impressed upon me in one of the fatal cases I have had at the Preston Retreat. The woman entered the hospital in labor with no history nor signs of any heart lesion. She had a spontaneous labor of normal duration. Immediately after the birth of the child signs of heart failure appeared. The symptoms suggested at first a rapidly fatal internal hemorrhage, such as one of those rare cases of ruptured varicose vein in the broad ligament. The signs of bleeding, however, did not continue, and in spite of active stimulation the woman died. The autopsy was made by Dr. Edsall. A microscopic study of the heart showed degeneration of heart muscle as the result of toxemia. The brunt of this toxemia had not been upon the kidneys or liver, but upon the heart, and she died as a direct result of the toxic condition which resulted in fragmentation, so-called, of the cardiac muscle. When toxemia makes its appearance even in the mildest grade of organic heart disease complicating pregnancy, it is of evil prognostication. Dr. Nicholson's very excellent paper agrees entirely with the experience of all men who see these cases.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Meeting of November 11, 1902.

The President, EGBERT H. GRANDIN, M.D., in the Chair.

SPECIMEN OF A RESECTION OF SEVEN INCHES OF SMALL INTESTINE
WITH THE O'HARA FORCEPS FOR CONSTRICTION AND INJURY
TO THE GUT COMPLICATING THE REMOVAL OF AN OLD
TUBO-OVARIAN ABSCESS WITH APPENDICITIS;
UNCOMPLICATED RECOVERY.

Dr. GEORGE GRAY WARD, JR.—Mrs. A. S., aged 26 years, married seven years, was perfectly healthy until the birth of her child five years ago. The delivery necessitated a difficult forceps operation, which was followed by sepsis. From the time of the labor she suffered from constant pain on the right side of the uterus, with exacerbations of fever. She was treated with local applications for two years and then operated upon three

¹See original article, p. 44.

years ago for an abscess in the right inguinal region. This abscess was incised and thoroughly evacuated, but it had never healed in spite of every effort to close it by local treatment. When the patient was first seen she had a sinus in the right groin which was discharging thick pus very profusely. She had constant pelvic pain, worse on the right side, and occasionally a profuse leucorrhea, and at times the pus has discharged from the rectum. Examination under anesthesia revealed a large mass in the right broad ligament, and a probe passed into the inguinal sinus for a distance of seven or eight inches into the mass in the pelvis. The general health of the patient was greatly impaired by the constant discharge and pain.

On July 30, 1902, the patient was operated upon by me in the Post-Graduate Hospital. A vaginal incision into the cul-de-sac was first made for purposes of exploration and diagnosis and drainage, as it was thought that possibly the abscess cavity could be removed by that method and thus avoid opening the abdomen with a discharging sinus so close to the field of operation. The extensive intestinal adhesions made a laparotomy imperative, so that the inguinal sinus was covered with gauze and then sealed with collodion to avoid contamination of the abdominal wound. An incision into the median line was made, and the densely adherent omentum was ligated in sections and freed from the bladder and uterus. The vermiform appendix and two loops of the ileum were densely adherent to the walls of a tubo-ovarian abscess. The appendix was first removed, liberating the caput coli, and with great difficulty the two loops of the bowel were separated; one loop contained an opening, one inch in length, communicating with the abscess cavity, and thus accounting for the occasional discharge of pus per rectum. This opening was closed by inverting the edges with silk mattress sutures. The other loop of the bowel was constricted in its centre, and the coats were much damaged and contained several small perforations, so that it was not deemed safe to leave it. The O'Hara forceps—which I had obtained after seeing them presented and demonstrated by Dr. Brooks H. Wells last winter at this Society—were used in making the resection of the seven inches of damaged bowel, and an end-to-end anastomosis made with surprising ease, accuracy, and cleanliness, so much so that I wish to present them again to the Fellows with the article by Dr. O'Hara descriptive of their use in *THE AMERICAN JOURNAL OF OBSTETRICS* for July, 1900. Silk mattress sutures were used after the method of Halsted. The walls of the tubo-ovarian abscess were dissected out in the usual way and the opening of the inguinal sinus closed with a stitch. Vaginal drainage with gauze was employed.

The patient made an uninterrupted recovery, the temperature and pulse were normal on the fourteenth day, and she was out of bed on the twenty-seventh day. She has since gained fifteen pounds and is perfectly well.

The O'Hara forceps have such decided advantages over the other aids to intestinal anastomosis that I believe their virtues need but be emphasized to insure their being given a trial. I have been surprised to find how many men, prominent as abdominal surgeons, have never heard of them. Among their advantages may be mentioned the following:

1. One pair of the O'Hara forceps is required for any size of intestine, while different sizes of Murphy buttons or La Place forceps are needed.

2. It is not necessary to ligate or clamp the bowel as with the button or other methods, as the O'Hara forceps keep the intestine closed at the site of resection throughout the operation.

3. No manipulation or work inside the bowel is done, so that the advantage of cleanliness is one of the strongest points in their favor.

4. Perfect control of the work, the slippery intestines being held with great ease and allowing accuracy of suturing.

5. Simplicity.

I have received a letter from Dr. O'Hara in which he sends me the report of four cases where they have been used, three successfully, and one died in eighteen hours from shock of a very severe laparotomy for adhesions. Dr. Brooks H. Wells reports their successful use in a case of ileo-colostomy for carcinoma.

MULTIPLE FIBROMATOUS UTERUS, SUPPURATIVE IN CHARACTER, COMPLICATED WITH AN ELONGATED CERVIX AND COMPLETE PROLAPSUS OF THE VAGINAL WALLS IN A VIRGIN.

DR. GEORGE GRAY WARD, JR.—The patient, aged 50 years and unmarried and a virgin, came to me with a diagnosis already made of complete prolapsus uteri, and complaining of nothing other than the inconvenience in walking. The menopause had occurred without trouble five years before, and the condition of the prolapsus had existed for the past two years. Examination revealed the usual condition present in complete prolapsus of the vaginal walls and uterus. A sound entered the cervix and apparently reached the fundus at a depth of two and a half inches. The vaginal walls were easily replaced; and although the abdominal walls were very fat, the fundus of the uterus, of normal size, was supposed to have been felt, but which afterward proved to be the pedunculated fibroid attached to the specimen. The growth, which completely blocked the pelvic cavity below the brim, was not recognized until the patient was under ether and ready for the operation of ventral fixation with silk sutures and posterior colporrhaphy and perineorrhaphy, which I proposed to do for a cure of the condition. On opening the abdomen a great, thickened peritoneum was found, giving evidence of the existence of a chronic peritonitis due to the suppurative character of the growth. The pedunculated portion of the fibroid was of a yellow color and much softened and degenerated. A supravaginal hysterectomy was performed, and the

stump of the cervix was easily brought up to the abdominal wall and fastened by passing two strong braided silk sutures through the cervical tissue and abdominal wall, including the fascia of the rectus muscle. Two weeks later a posterior colporrhaphy and perineorrhaphy was done to close the relaxed vaginal outlet and support the suspended vaginal walls. The patient made a rapid and complete recovery.

TERATOMA; TWISTED PEDICLE, WITH IMPACTION IN DOUGLAS' CUL-DE-SAC, SIMULATING PELVIC ABSCESS OF PUERPERAL ORIGIN.

DR. HIRAN N. VINEBERG.—I was called in consultation to see Mrs. S. on October 21, 1902, for supposed puerperal sepsis. The patient was 30 years of age, married six years, and had three children, being delivered of the last child four weeks prior. The labor seemed to be normal, and the only unusual feature observed by the attending physician was severe pain along the anterior part of the right thigh during each labor pain. This symptom was present also during the labor preceding the present one. She made an apparently good recovery and was up and about at the end of two weeks. Four days before I saw her she had been seized with pain in the lower part of the abdomen, accompanied by a temperature of 103°. The attending physician, finding what he took to be an enlargement of the uterus from subinvolution, superficially curetted the uterus and gave an intrauterine irrigation, washing away considerable débris. This was followed by reduction of the fever, but on the following day the temperature rose again, the pain persisted, and the patient suffered from painful defecation and at times from retention of urine. These symptoms continued until the time of my visit. I found the patient in bed with a temperature of 103°, pulse 120, a coated tongue, abdomen moderately distended and markedly tender over the hypogastrium. On vaginal examination the posterior part of the pelvic cavity was found filled by a spherical mass which was encroaching upon the rectum. It was fluctuating and seemed to be intimately connected with the uterus, which lay in front and appeared to be considerably enlarged. A diagnosis of pelvic abscess due to puerperal infection was made and vaginal incision and drainage were advised. On the afternoon of the same day, at the patient's house, I made a posterior vaginal incision, but to my surprise no pus appeared. On introducing two fingers into the incision I found that the cystic mass was about one inch above the incision. I made an opening into the mass with scissors, guiding them with my fingers. Some puriform fluid escaped, then a mass of hairs and débris, showing we had to deal with a suppurating tumor of the ovary of a dermoid nature. After irrigating the interior of the cyst with sterile water, I passed my fingers within the cyst and found that there was a solid body attached to its upper wall. The cyst being firmly fixed in the pelvis, and not being prepared to open the abdomen, I packed the interior of the cyst with iodoform gauze

and had the patient transported to St. Mark's Hospital. The fever promptly fell and the patient was fairly comfortable. Two days later I performed a laparotomy. I found the omentum and intestines adherent to the upper border of the pelvic tumor. After liberating these I could see that the tumor was one of the right ovary and that the pedicle had undergone two complete twists. The tube was edematous, almost black in color, as were also the walls of the cyst. The pedicle was ligated and the tumor ablated. The abdominal incision was closed with sutures. The patient is making an uneventful recovery, the abdominal wound healing by primary intention. You see that the solid body attached to the interior of the cyst is about the size of a turkey's egg and bears the shape of the trunk of a human fetus. On either side at its inferior part is a rudimentary leg with five rudimentary toes. In the centre is a penile-like projection of almost a black color from effusion of blood due to the twisted pedicle. I have not cut into the mass to determine what internal organs are represented, but have no doubt it consists of the usual aberration of organs usually found in such growths.

Apart from the rarity of such specimens, the case is of interest from a clinical standpoint. The history and the physical signs pointed unmistakably to a pelvic abscess of septic origin. Here was a woman, in whom I was assured by her physician there had been no pelvic tumor at time of delivery, taken suddenly ill with fever and pain after she had been allowed to get up and go about. I find the general conditions of sepsis, fever, rapid pulse, and a coated tongue. On examination a large, fixed, fluctuating mass is found behind the uterus, and evidence that the uterus had not undergone proper involution. Any other diagnosis than the one made could not reasonably have been entertained. Although not premeditated, the course pursued is one which, to my mind, was the safest, even had I known the true nature of the existing condition. By evacuating the liquid contents of the tumor, which was decidedly septic, from below, the removal of the tumor afterward through an incision from above was attended with no risk of infection of the general peritoneal cavity. Of course, ordinarily the operation can be completed at one sitting, particularly if the precaution be taken to use rubber gloves during the first step. As I am always in the habit of using rubber gloves when I suspect pus or a septic condition, a surprise of that kind would not find me unprepared to finish the operation, were I provided with the necessary instruments and assistants.

TUBERCULOSIS OF VAGINAL PORTION OF THE CERVIX AND OF THE
ENDOMETRIUM, ASSOCIATED WITH TUBERCULAR DISEASE
OF THE ADNEXA; HYSTERECTOMY; DEATH.

DR. HIRAM N. VINEBERG.—Mrs. G. F., aged 37 years, married nineteen years, had nine children and no miscarriages. Menses set in at the age of 12 years, were regular, moderate in amount, and not attended with pain. She was admitted to the Mt.

Sinai Hospital July 29, 1902. Her family history was negative. Two years and a half ago she had had pleurisy and effusion, for which she was tapped. This was her only illness until the present one, which began about three weeks ago with pain in the lower part of the abdomen and with fever. She has been confined to bed all the time. The menses have not recurred for two months, and she has had no chills, no night sweats, no cough, no hemoptysis, no dyspnea, no edema of legs. She has lost considerable flesh and strength. Upon admission she showed a sallow complexion and was very much emaciated. Temperature was 99° F. in the morning and 102° F. in the afternoon. Her tongue was coated with a white fur. There was retraction above and below the clavicles on both sides. There was some dulness over both apices behind. No cough. No sputum. There was a systolic murmur in the third interspace near the sternum, probably hemic. On vaginal examination the uterus is found enlarged to the size of a gravid uterus at the sixth or seventh week. There is a mass to the left and behind the uterus, the size of a hen's egg, which is very firmly fixed to the uterus. The right tube is about the thickness of the thumb.

Upon ocular inspection the cervix is considerably enlarged, the hypertrophy being most marked in the anterior lip, which presents three large ulcerations. The ulcers are irregular in outline, moderately deep, and covered with a dirty-grayish exudate. They are separated from one another by a very narrow strip of mucous membrane of a rather bright-red color. There is no marked induration of the lip, no friability of the tissues, and no tendency to bleed on being touched. There is a thick, tenacious, grayish-yellow discharge from the external os. I made the diagnosis of tubercular ulceration of the vaginal portion, with probable tubercular disease of the adnexa. The absence of menstruation for two months, associated with enlargement of the uterus, gave rise to the suspicion of pregnancy. Repeated examination of the discharge from the surface of the ulcers and from the cervix did not show any tubercle bacilli. Although I had never seen a case of tubercular ulceration of the cervix, I adhered to my diagnosis, which I had reached by a process of exclusion, in spite of the negative results of the bacteriological examinations. The pathologist, however, was enabled to report, in the course of a few days, that the lesion was tuberculous, from a fragment of tissue which I had gouged out with the sharp spoon from the surface of one of the ulcers. For the four days prior to the operation the temperature ranged from 100° to 103° F., the pulse from 110 to 130. The ulceration extended slowly to the posterior lip during the four days the patient was under observation in the hospital.

The operation proved to be very difficult, owing to the firm adhesions of the left tubo-ovarian mass to the pelvic wall. When the mass was finally enucleated it was very difficult to stop the oozing, even after the uterine vessels were secured and the

uterus was removed. The loss of blood and the severity of the operation proved to be too much for the patient, who was cachectic and emaciated, and she died six hours after the operation from cardiac weakness.

No autopsy was permitted. On bisecting the uterus a perfect specimen of tuberculosis of the endometrium was obtained. The mucosa was double the normal thickness. It had a soft, velvety appearance and was thrown into numerous longitudinal folds. On very close inspection small, fresh tubercles could be seen on the summit of the folds. The mucosa of the cervix was equally involved. Tubercle bacilli were readily found in the endometrium. The right adnexa were indistinguishable as such, forming an abscess sac, the pus of which contained tubercle bacilli in abundance. The left tube was enlarged the size of the index finger and was filled with pus which contained the tubercle bacilli.

It is the intention of the reporter to publish this very rare and interesting case more at length at some future period, when he hopes to give a résumé of the literature of tuberculosis of the vaginal portion of the cervix.

DR. WILLIAM R. PRYOR.—How did the tuberculosis originate?

DR. H. N. VINEBERG.—I am inclined to think that the woman may have had a healed tuberculosis in the lung, although no evidence of this kind was given in the hospital. She had had two attacks of pleurisy, one two and a half years before and the other six months before entering the hospital. The most thorough examination at the time she was in the hospital did not detect any lung lesion. We were not able to get a postmortem. Nothing abnormal was found with regard to the husband, except that he had a hypospadias.

DR. R. WYLIE.—Was the operation done per vaginam?

DR. VINEBERG.—No, but by way of the abdomen.

DR. R. WYLIE.—Was there any secondary infection of the lymphatic glands?

DR. VINEBERG.—No. The operation was a very severe one and the patient died from shock. The omentum and peritoneum were not involved in the tubercular process.

DR. R. WYLIE.—Were the retroperitoneal glands involved?

DR. VINEBERG.—That I cannot tell you, as the adnexa were so extensively adherent to the floor and walls of the pelvis.

DR. WILLIAM R. PRYOR.—This is an exceedingly rare specimen. The American Gynecological Society will ask Dr. Vineberg to report to it this specimen, in order that it may be placed on record with it.

THE CHAIRMAN.—It is fair to assume that we should regard this as a specimen of probable tuberculosis of the cervix.

DR. HENRY C. COE.—I showed a specimen two years ago of tuberculosis of the cervix; a diagnosis of carcinoma was made. The specimen was examined by Dr. Dunham and there can be

no question about the diagnosis. I have it still. The specimen was examined pathologically.

OPERATION TO PREVENT PREGNANCY.

DR. DOUGAL BISSELL.—I wish to put on the records of this Society a brief account of an operative procedure during the performance of a Cesarean section by me, October 17, 1902, for the purpose of insuring sterility.

The Cesarean section was the second performed on the same woman during the course of sixteen months, and it was her wish that some surgical and positive procedure be adopted, at the time the child was removed, to prevent future conception. I was unwilling to sacrifice her ovaries or uterus, and, as ligating the tubes at the uterine ends had proved in the hands of others an uncertain method, I thought it advisable to apply the plan adopted by certain operators, notably by Dr. J. N. West, in case of pyosalpinx when the collection of pus in tube extended close to the uterus. The tubes were, therefore, dissected out of each uterine horn and the remaining raw surfaces of the uterus brought together with catgut sutures. In this way the uterus was converted into a closed sac. The free ends of the tubes were ligated about one-quarter of an inch from the uterus and the portions which formed part of the uterine wall were cut away. The broad-ligament surfaces were spread open and the ligated ends of the tubes anchored at the bottom of these raw spaces, and the edges of the broad ligaments stitched together.

PERSISTENT MENTO-POSTERIOR POSITION AND PERSISTENT OCCIPITO-POSTERIOR POSITION TREATED EXPECTANTLY WITH REST AND STRYCHNIA.

DR. J. CLIFTON EDGAR.—These two cases are of interest, first, because of the fetal dystocia caused by a faulty position and tardy rotation; second, the expectant treatment used in each instance; third, the action of strychnia in secondary inertia; fourth, the mechanical phenomena of head moulding.

Case I., of persistent mento-posterior position, was brought into the Emergency Hospital in April, 1902. The position was right mento-posterior, and the diagnosis of a macerated fetus was made. Secondary inertia developed and strychnia to the physiological degree was administered subcutaneously. Anterior rotation of this child about the right side of the pelvis occurred and spontaneous delivery of the head by flexion took place. I herewith present to the Society a tracing of the moulding of the head, and also five photographs, selected from several, of the emergence of the head at the vagino-vulval outlet.

Case II.—Ipara, aged 18; German, and unmarried. Gestation end of seven months. She was brought by ambulance into the hospital with a persistent occipito-posterior position of the right occipito-posterior type. Secondary inertia developed. Strychnia was administered to the physiological degree, and

spontaneous labor resulted, the occiput rotating about the right side of the pelvis. I show for inspection a lead-tape tracing of the moulding of the fetal head, taken a few minutes after birth.

DR. ANDREW F. CURRIER.—I saw a case a few weeks ago which showed the value of the expectant treatment in occipito-posterior positions. The woman, two years previous, had had a premature labor, quite a rapid one, and it was supposed that this time, too, she would have a rapid one. The labor, however, proved to be a very slow one, and, after she had been in labor twelve hours, it was clear that we had to deal with a case of occipito-posterior position, to the right I think; but the pelvis seemed sufficiently ample and so we decided to wait. Within twelve hours it was clear that the head had rotated, delivery following naturally.

In another case of occipito-posterior position, seen a few months ago, there was shown the possibility of correcting the presentation with the forceps, although I believe this is not generally looked upon as a desirable procedure after the head has engaged. The woman had been in labor twelve hours, there was uterine inertia, and the patient was exhausted. Her doctor had been with her all night, during which time she had had active pains, but with little progress. I advised the application of the forceps, believing that I could rotate the head. I not only succeeded, but also drew the attending physician's attention to the ease with which it was accomplished.

DR. G. T. HARRISON.—I have nothing to say with regard to the statements made about the occipito-mental positions; but with regard to the method of treatment of occipito-posterior positions, I certainly am opposed to the expectant plan of treatment. Dr. Brodhead has already read a paper on this subject before us which was of great value. I am not prepared to follow what has been said with regard to the application of forceps. When I am called to see a patient, the time has often passed when the conditions necessary can be fulfilled with regard to the facility with which the position may be rectified. A method of treatment which overrides all others, and one with which I have never failed, is by podalic version. That is the treatment for these cases. While we may be able to correct the position with the head at the brim, we cannot correct it with the head down in the pelvis. It is then too late to fiddle around with the forceps and endeavor to correct this position of the head; while others are endeavoring to do this my baby is born and dressed and the mother out of the ether.

DR. CHARLES JEWETT.—Dr. Edgar's experiment is of a good deal of interest. In one of his cases the fetal head was macerated, in the other it was small—conditions favorable to rotation. The fact that rotation occurred in both speaks strongly for the possibilities of expectant treatment with a normal head, when conditions are such as to permit. Strychnia I believe to be of very great value for the purpose mentioned, but I seldom rely upon it alone.

DR. HENRY C. COE.—I do think that Dr. Harrison has missed the point made by the reporter. Reference was made to the *impacted* head, in which case version would of course certainly not be indicated. Dr. Edgar did not mean to have us infer that in the case of a primipara with a large fetal head we should trust too long to the unaided power of Nature.

DR. SIMON MARX.—I think it is best to wait, in these cases, until the time arrives when something should be done. In the case Dr. Edgar presented, that of uterine inertia, the patient should have been delivered at once. The secret of success in all cases of occipito-mental positions consists in the early recognition of them and determining whether there was the first or second position of the head. The secret of success lies in the timely and early recognition of the malposition. If we tried to correct it with direct or indifferent measures, then the expectant treatment would hold good. I feel that I can do more in occipito-posterior than in occipito-anterior positions because they are recognized earlier. When the position is recognized rotation should be attempted, but not, as Dr. Brodhead has advised in his paper, by forcible rotation, but we should attempt to correct it through the application of pressure; axis traction, and not the forceps, will deliver these cases without trouble. I think that the use of strychnia is all right when employed in the hospitals with a premature fetus; but in private practice it will not do. We should not procrastinate in giving strychnia; it should not be given unless secondary uterine inertia calls for it.

DR. J. C. EDGAR.—I hope I may be allowed to criticise my own treatment, and also to disagree with what has been stated tonight regarding the treatment of a persistent mento-posterior position in the case of a dead fetus. In these cases one should deliver after perforation, and the latter should be performed as soon as possible. One should never hesitate to mutilate a dead fetus when by so doing the dangers of delivery are lessened for the mother. In the case cited the hospital house staff was greatly interested in the delivery and desirous of witnessing the mechanism of labor in a mento-posterior position, and asked that spontaneous labor without interference be allowed to continue.

MODIFICATION OF VOORHIS' RUBBER BAG.

DR. H. C. COE.—I wish to show a rubber bag which I have found of value in dilating the cervix during the induction of premature labor. When distended it has the form of two cones, with their apices connected by a tube two inches long and one inch in diameter. The diameter of the larger (intrauterine) cone at the base is three inches; of the smaller (intravaginal), two inches. The advantages of the bag are threefold, viz.: 1. Thorough dilatation of the lower uterine segment without rupture of the membranes. 2. Accompanying dilatation of the cervical canal and os externum. 3. Immobility of the bag, which cannot slip out of or into the uterus.

I wish to refer to a recent case in which I secured so much expansion that the lower segment was completely dilated manually in five minutes and a difficult extraction was successfully effected. I wish to call attention to the fact that both the gauze tamponades and the largest rubber bags might be left *in situ* for many hours without producing labor pains. In the case cited the patient was absolutely without uterine contraction before or during delivery. This is not an unusual experience, provided the membranes are kept intact.

SOME CASES OF PUERPERAL SEPSIS AND THEIR TREATMENT.

DR. W. S. STONE read the paper of the evening. An experience with 27 cases in the septic service of the New York Lying-in Hospital formed the basis of the paper. The histories of 9 were related in detail, together with the pathological and bacteriological reports of 3 autopsies. There were 16 examples of septic intoxication, 8 of septicemia, 1 of pyemia, 2 of doubtful origin. The important features of these cases were as follows: With the exception of putrid uterine contents, appreciable lesions of the pelvis were frequently absent. Distinct evidences of the effect of septic poisons upon the kidneys were very constant. A similarity of some cases of eclampsia to those of septic intoxication was noted. Lesions in the lungs were a frequent manifestation, the chief characteristic of which was their variability in kind and degree. Destruction of the red cells and hemoglobin was present to such a marked extent in some cases that treatment of the blood required the chief consideration.

As a measure for preventive treatment, the more general use of rubber gloves in obstetrics was recommended. Aseptic rather than antiseptic methods in local treatment are preferred. An intrauterine exploration, usually under anesthesia, and the cleaning out of the uterus with fingers or instruments, was urged in every case at the beginning of treatment, unless there are infected wounds of the vagina or cervix which are presumably the cause. Subsequent intrauterine douching was rarely necessary. Special attention was directed toward such general measures as forced feeding, stimulation, use of iron, and abundance of fresh air.

The successful outcome of many apparently hopeless cases, treated by such means, should make one carefully deliberate before adopting operative procedures; although the result of the autopsies in two of the writer's cases showed that a hysterectomy would have been indicated if there had been an early appreciation of the pathological condition.

DR. CHARLES JEWETT.—I have used gloves constantly in obstetric work for three or four years. That my results have been better with them I am not prepared to say without comparing the morbidity before and since. In my own cases in private practice I have had no mortality in at least fifteen years, with or without gloves. Theoretically the value of gloves is

very great. but care in examining internally must not be relaxed and pains must be taken to see that all parts of the gloves, inside and out, are well wet during the boiling. Rubber gloves, I am sure, find their best use in obstetric practice.

DR. RALPH WALDO.—I would like to make one statement with regard to the variety of treatments advocated, in order to lay as much stress as possible upon the method, and that is, the interior of the uterus should be thoroughly cleaned and no intrauterine douches should be used thereafter. The plan of repeating intrauterine douches of antiseptics or sterilized water, or anything else, as a rule does more harm than good.

DR. GEORGE L. BRODHEAD.—I think that the most important point in the discussion is that which deals with the prevention of sepsis. We have seen from Dr. Stone's paper, and know from our own experience, that the majority of cases of sepsis occur in women who have been subjected to operative procedures of various kinds, or who have had eclampsia, placenta previa, etc., which tend to lessen the power of resistance in each case. I believe that we can perform very severe operations upon our patients if we but protect them from septic infection, first, by the proper care of our hands, and, secondly, by thorough cleansing of the field of operation. There is one little point in regard to the prevention of sepsis which I believe to be very important and which is not carried out as a rule either by the general practitioner or by many who specialize in obstetrics, and that is the little point of removing all the hair from the vulva in every obstetric case. Just why this should be done preparatory to gynecological operations, and not in obstetric practice, I cannot see, for the danger of infection from the hair is certainly far greater in obstetric cases, owing to manual manipulation and the extensive field with which infection may be brought into contact. It is my invariable rule in all confinement cases to cut the hair off as close as possible to the skin, thereby giving a clean field of operation, and decreasing, as I believe it does to a great extent, the possibility of infection.

Now in regard to the use of rubber gloves in obstetric work. In my opinion gloves should always be worn in all examinations, and in all operations upon patients who are septic or who may possibly be septic. In this way only can the hands be kept free from contact with septic material. Furthermore, gloves should be worn in all cases of confinement immediately following operations or examinations of a septic nature, or whenever, in general practice, a physician has come in contact with infection of any kind in dressing wounds, etc. Puerperal sepsis is a preventable disease, and knowing, as we do, the usual source of septic infection is to be found in the fingers of the attending physician or nurse, a most important step in the right direction has been taken in providing a means by which manipulation and operative procedures can be carried out, the rubber gloves act-

ing as a sterile medium between the hands of the operator and the maternal tissues.

DR. WILLIAM R. PRYOR.—The subject which Dr. Stone discusses is certainly a most important one. The great confusion which exists in the minds of the profession at large is well illustrated by the conflicting views expressed in our medical bodies, even the one I am now attending. Dr. Stone speaks of these cases as septic, but apparently has made no attempt to get cultures from inside the uterus. It may be possible that it makes no difference whether the cases are septic or putrid so far as treatment is concerned. Of course I do not believe that such is the case; and if it does make a difference, the matter, it seems to me, is of sufficient importance to warrant precise diagnosis and not one based upon symptoms. I believe the treatment for diphtheria is different from the treatment of ordinary tonsillitis, and I also believe that the treatment is based usually upon the positive demonstration of the existence or absence of the diphtheria bacillus. So it is with these cases under discussion; they are not septic unless septic germs be shown to be present, and any treatment applied to them which seeks to control sepsis when sepsis does not exist is wrong, and any treatment applied to these cases when they are septic and which will not control the sepsis is equally wrong.

The method of examining the uterine contents in a case of puerperal fever is pretty well established and of very general adoption. If this method of securing the contents of the uterus for examination is properly carried out, in only very rare instances will the pus-producing organisms be found to be absent if the case is septic; and in the rarest of instances will they be found if the case be not septic. These precise methods of arriving at a proper diagnosis it does not seem that the author has adopted, and we must throw out as septic cases all those that the bacteriological examination has not shown to be septic. To illustrate the importance of a proper diagnosis in these cases as bearing upon the treatment, I have analyzed the entire literature of the world. We all admit that retained products of conception which are undergoing putrefactive changes and which are producing sapremia should be removed mechanically. About that I believe there is no discussion. But suppose a mistaken diagnosis is made, and this treatment for sapremia be applied to a case of sepsis, what is the result? I have found that the mortality from curettage in sepsis is 22 per cent, and one gentleman even had 59 per cent mortality. The normal mortality from neglected streptococcic sapremia is at most 15 per cent, and generally less than that; so we see that where the diagnosis is not correct and the incorrect treatment is applied the mortality is nearly double.

I do not wish to offer this as a personal criticism on Dr. Stone; but inasmuch as these findings are from so influential an institution, they should not be allowed to go out as an indorsement

of the haphazard method adopted by the confused general practitioner in arriving at his diagnosis. All of these women can be saved if treated upon lines laid down, but the proper treatment can only be applied after a proper diagnosis.

DR. GEORGE T. HARRISON.—I would like to say one word with regard to the statement made by Dr. Stone about the use of the curette. I do not think that we ought to make use of the curette whether the case be one of simple sapremia or one of sepsis. With regard to Dr. Pryor's criticism, I want to say that we do make a discrimination, properly speaking, between sapremia and sepsis. Most writers, however, include under sepsis both sapremia and streptococcic infection. In the ordinary acceptance of the term used by surgeons and obstetricians, we do make a distinction between intoxication, or sapremia, and sepsis proper. We may have a staphylococcus infection, which is very rare. In neither class of cases, sapremic or septic, do I believe that we ought to use the curette. Very properly, in the cases which Dr. Stone has related, he advised the use of the intrauterine douches, and he very properly insisted that we should not use very strong antiseptics in our irrigations. When I hear of obstetricians treating so-called septic cases with irrigations of bichloride of mercury, it makes my hair stand on end. It is horrible to think that many medical journals are filled with any quantity of cases where death has ensued from such a procedure; not only is it dangerous, but it does no good. The bacteriological examination, as Dr. Stone has shown, reveals that such a method has only a temporary effect.

THE CHAIRMAN.—How would you treat those cases of streptococcic infection?

DR. HARRISON.—On general principles, not by local measures.

DR. W. G. WYLIE.—The paper is certainly a very interesting one and well prepared, and gives a very clear history of a certain class of cases that I have been familiar with for twenty years. Bellevue Hospital is a receptacle for just that class of cases. I began the study of obstetrics at Bellevue in the spring of 1872, and I took charge of the lying-in wards and delivered 40 women, and not one died, although many of them had slight temperatures. No attempt was made at washing out the uterus in these cases. We had success then, as now, by keeping everything clean and throwing away the sponges and oiled cloths that were used. I believe in the use of antiseptics and I practise cleanliness. I left Bellevue and entered the Woman's Hospital and there delivered quite a number of women each year. I have been in practice more than twenty-seven years without losing a single case. I have had only one case in practice in which I resorted to local treatment for septic infection of the uterus, and this woman lived. It was, too, a desperate case. At that time the best men in America and the greatest men in New York had case after case, even four or five cases under treatment at one time; they did not practise cleanliness and went

from one case to another. I know it could be prevented, and without gloves, but with cleanliness. They were intelligent men, but they did not practise cleanliness. Of course, if men have dirty hands and cannot get them clean, gloves are all right. I began to practise the local treatment of septic cases, those cases that I considered puerperal, when they gave the following history: A woman, who was delivered in a normal condition apparently, in two or three days had a chill and a rise in the temperature; in many cases death would ensue unless treatment was given. In Bellevue, in 1882, a woman with such a history and with a temperature of 103° or 104° F., with profuse sweating, would cause the house staff to get ready to sign the death certificate. This is a fact. I took charge of the cases then that were sent to our service for treatment, and by local treatment I succeeded in curing eight out of ten cases; I personally directed the treatment. To-day I treat these cases in the same way. I believe that sepsis begins in the uterus, although it can begin externally. Those cases I considered very dangerous in the past. I followed it up in Bellevue with success. If I get a case in Bellevue—and every case sent there is a desperate one—I immediately empty the uterus, with my fingers by preference. Then I judge of the condition of the tissues. I believe that a curette introduced into a septic uterus will find it in a condition which can be compared to a wet blotting paper, and I think the use of this instrument is very dangerous. We do not believe in the bichloride or irritating injections. Carbolic acid can be introduced on cotton, to which a little glycerin has been added, after we have cleaned out that organ. Wash it out with a weak solution of carbolic acid or sterile salt solution. This poisoning must start on the surface, and if you wash and drain you do not necessarily kill the germs, but you prevent their growth. If you drain an open wound the tissues can protect themselves; it is the closed wound that does not protect itself. Therefore if you drain the uterus thoroughly you are doing right, and that is the reason why I never advocate stuffing with gauze. If you will empty such a uterus without damaging it, and wash it out with a weak solution, like carbolic acid, you will probably check the reproduction of germs. That should be done once every hour or once every six hours, and I believe that nine cases out of ten will be cured. This kind of treatment can do no damage, but it must be done by an artist with an educated sense of touch. I have repeatedly attended such cases with success that had been given up by the best men. I have taken hold of and succeeded in curing such cases, provided the disease has not gotten into the circulation and been carried out of reach. I am not willing to wait because we can explain so many things by the microscope; I will not sit down and allow the condition of affairs to progress and not use this line of treatment I have mentioned. If, after washing out the uterus, I find the temperature does not go down to normal, then I am going to look for pus, opening the uterus or

the abdomen and look for it. Whether gangrenous or a septic peritonitis, with a temperature of 104° or 105° F., I have seen such patients get well; in three distinct cases have I seen it.

DR. R. H. WYLIE.—It seems to me that in this paper the author is swinging the pendulum too far against antiseptics. The doctor says that he washes his hands with soap and then soaks them in bichloride before putting on the rubber gloves; and yet when he washes off the vulva, which is more difficult to clean, he only washes and does not use an antiseptic. I can see no reason why we should not use an antiseptic on the vulva to help disinfect it.

With regard to the use of gloves, I do not follow the last speaker. He has had good results without the use of gloves, but there are times when you cannot disinfect the hands; therefore I believe in the use of gloves, though I recognize that in some operations they are a great handicap in manipulation. We must not forget, however, that gloves are difficult to clean and render aseptic unless due care is taken. I agree with the last speaker in regard to the importance of cleaning out the uterus and establishing free drainage from the same. I also believe that washing out the uterus helps this drainage, if it is done without traumatism.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY.

Meeting of October 28, 1902.

The President, LE ROY BROWN, M.D., in the Chair.

DR. HERMAN GRAD exhibited a specimen of

LIPOMA OF THE VULVA.

This specimen of lipoma of the vulva is presented because the condition is considered to be a rare one. Dr. Carmalt reported a case in February, 1902, before this Society and reviewed the literature on the subject. He finds fourteen cases in literature and twenty-one cases collected by Howard Kelly in his "Operative Gynecology."

Mrs. Z., aged 23, married, had one child eight months ago. The patient says that when three months pregnant she noticed a lump in the left labium majus. It was not painful. The skin was movable over it and was smooth. The attention of her medical attendant was called to it, who thought it was an enlargement due to varicose veins. During the period of gestation the tumor grew very rapidly. Since the confinement, which was eight months ago, the tumor has only slightly enlarged.

Physical Examination.—Chest and abdomen negative. At the left labium majus there is an enlargement five inches in length and three inches broad. The tumor is soft, almost imparting a sense of fluctuation; perfectly movable; painless; skin moves freely over the tumor. The tumor can be made to slide under the skin toward the inguinal opening, but cannot be made to enter it. There is no impulse on coughing. The tumor has no pedicle. No other enlargements of similar nature are found in any part of her body. Patient is well in every other way. The tumor interferes greatly with locomotion.

On May 14, 1902, patient was anesthetized and placed in the lithotomy position. Under proper aseptic precautions the base of the tumor was incised and shelled out with great ease. After tying a few bleeding points the wound was closed without drainage, fully restoring the normal appearance of the labium. The wound healed by primary union.

He also narrated the history of a case of

ACUTE PURULENT GENERAL PERITONITIS FOLLOWING LABOR.

The case here reported is of interest from a pathological rather than a clinical point. It is one of puerperal septicemia terminating fatally, where the pathological findings were different than is usually encountered in puerperal sepsis. The patient, Mrs. S., aged 23, primipara, was first seen forty-eight hours after delivery. She had been in labor thirty-six hours when it was terminated by forceps. In the twenty-four hours following delivery the patient was doing well when abdominal pain and headache set in. During the next twelve hours the patient had three chills, the first of which was a very severe one. The patient had a temperature of 105° F., pulse 120, respiration 23. She was lying on her back, thighs flexed, respiration costal, anxious facial expression, suffering intensely.

Examination showed a markedly enlarged abdomen. On percussion the abdomen was tympanitic above the umbilicus, but flat below this point. A catheter introduced into the bladder was followed by the evacuation of thirty-six ounces of clear, normal urine; but, in spite of the quantity of fluid withdrawn, the flatness on percussion did not disappear, nor was the abdominal distension diminished. Inspection revealed a laceration of the perineal body and two deep lacerations of the vagina. There was a tear in the cervix uteri, the laceration extending up toward the cul-de-sac as far as the finger could reach. All the wounds in the vagina had a dark, gangrenous appearance, and manipulations were exceedingly painful to the patient. The bowels had not moved since the patient went into labor. She was continually retching and vomiting. The lochial discharge was offensive and scanty. Abdominal palpation revealed nothing definite, nor could sounds of peristalsis be heard on auscultation with the stethoscope. Leucocytosis was 20,000. A hypodermatic of morphia was given to relieve the excruciating pain, and the

vaginal wounds touched up with pure peroxide, followed by uterine and vaginal irrigation of saline solution. Attempts were now made to obtain a movement of the bowels, but without result.

The next morning, finding no improvement in the symptoms, and the abdominal distension having greatly increased, I decided to anesthetize the patient, explore the uterus, and, if necessary, evacuate the fluid by abdominal section. Examination of the uterus proving negative, the abdomen was incised in the median line. As soon as the peritoneum was nipped, out gushed a quantity of sero-purulent fluid that was truly astonishing. There must have been many gallons of that fluid in the abdomen, and under such tension that when the peritoneum was opened a stream shot up in the air fully ten inches high. There was a general peritonitis present. The whole abdomen was one huge abscess cavity. Not a flake of exudate could be seen. There was no attempt on the part of Nature to shut off the infection, so overwhelming seemed the virulence of the poison. The intestines were deeply injected and distended. Examination of the uterine wall showed that the cervical tear had extended into the body of the organ and the rent, establishing a communication with the peritoneal cavity. No blood was, however, found in the pelvis. The abdomen was flushed with quantities of saline solution. Provision was then made for drainage. Very little shock seemed to follow the procedure, the pulse and general condition of the patient remaining about the same as before the operation.

Six hours after the evacuation of the fluid the bowels moved, the patient passing enormous quantities of gas. The temperature and pulse dropped, and there seemed to be a decided improvement in the general condition of the patient, the favorable symptoms lasting twenty-four hours. The clinical picture, however, soon changed. The pulse and temperature began to rise, delirium set in, the patient dying in coma two days after the operation.

The interesting feature of the case is the enormous quantity of sero-purulent fluid accumulated in the abdomen in two days of time. We know that the peritoneum can absorb and dispose of a very large quantity of fluid. In this patient the power of absorption of the peritoneum seemed to have been lost; or was the production of the fluid so rapid that the peritoneum could not cope with it? I should be glad if the gentlemen present would give expression of opinion as regards this pathologic condition.

While interne in the Newark City Hospital a somewhat similar case came under observation. The case was that of a young woman who, three days previous to her admission to the hospital, had been subjected to a criminal abortion. Her abdomen was enormously distended. The patient died a few hours after admission to the hospital. The autopsy revealed a surprising quantity of sero-purulent fluid in the abdominal cavity. Examination further showed a punctured wound in the posterior

wall of the uterus. The products of conception were still in the uterine cavity. There was no free blood in the pelvis; the intestines were much distended, and there was a general peritonitis.

DR. LE ROY BROWN.—Did you deliver the patient yourself?

DR. GRAD.—No. I saw her forty-eight hours after delivery.

DR. BROWN.—Do you know whether douches were used?

DR. GRAD.—No douches were used.

DR. GEORGE H. MALLETT.—I notice that in both cases reported a rent was found in the uterus. In that case it is wise not to irrigate.

DR. JAMES N. WEST.—I should like to ask Dr. Grad what the character of the drainage was, how he drained, where it was applied, etc.

DR. GRAD.—I left the abdominal wound open, placing a few silkworm-gut sutures to prevent the escape of loops of intestine, no gauze drainage being used.

DR. WEST.—The question of drainage is of the greatest importance. While I understand the difficulties of the case and the discouragements of it—Dr. Grad found the case practically in a moribund condition—we think it wise in such cases to go down to the posterior cul-de-sac and make a free incision in the vagina, and carry strands of gauze through the pelvis. By keeping it open wide with gauze packing there is no danger of prolapsus of intestines. We allow the drainage to go to the lowest point. The management of the drainage afterward is very important. In many cases it is necessary to drain to avoid infection of the peritoneal cavity. If the gauze is allowed to remain undisturbed the temperature rises, the pulse goes up, and all symptoms show evidences of septic absorption. We draw the gauze down for a moderate distance, and drainage is set up again quite freely; the temperature and pulse drop, and symptoms point to an improvement in every way. I draw down the gauze once or twice a day.

It seems rational to drain from below. In Dr. Grad's case I might have done as he did. There it seemed best to drain from the front.

DR. T. THOMPSON SWEENEY.—Would you drain through the cul-de-sac if the wounds in the vagina were gangrenous?

DR. WEST.—I would sterilize the wounds as much as possible; apply strong carbolic and apply drainage just the same.

Another very interesting point is the necessity for thorough asepsis before delivery. I believe these cases should be treated absolutely as surgical operations (this has no bearing on Dr. Grad's case), as if going to open the abdomen. I scour between the thighs, and wash the parts thoroughly, using green soap, as a first procedure. I believe it wise to have a clean field.

DR. BISSELL.—I follow Dr. West again.

DR. BROWN.—You recognized that the sepsis came from a tear in the cervix? You found no opening to the peritoneal cavity?

DR. GRAD.—The tear extended along the cervix to the body of the uterus. It could not be felt by the vagina. If the whole hand had been introduced it might have been felt; it was further up than could be reached. The rent could only be seen after the abdomen had been opened. I saw then where the communication was established between the vagina and the peritoneal cavity.

DR. BROWN.—Had you any reason to feel that the doctor was lacking in the radical ideas of what asepsis should be?

DR. GRAD.—Yes, I must admit I did not think he was aseptic; he said he did not boil his instruments—just washed them with carbolic solution.

DR. BROWN.—I asked these questions to bring up a most interesting point. If Dr. Grad could have recognized that there was a tear in the uterus, he would have opened the abdomen at once, washed it out, sewed up the tear, and by posterior incision drained the peritoneal cavity. He was not in a position where he could recognize it. I doubt, unless we saw signs of collapse, whether any of us would recognize a slight tear into the peritoneal cavity. Again: when we are called on to see these cases, are we to sew up these tears or leave them open? If there is any question of cleanliness I think it a wise course to leave them open. In many hundreds of just such cases the women's lives were saved by non-interference. Dr. Grad could not have done any more or less than he did.

So far as drainage goes, I cannot concur in all that has been said. I know the general opinion in acute septic peritonitis where there is perforation is to drain, placing the drain in different parts of the abdomen. The best results are obtained from thorough washing, the idea being that if we drain the deep kidney and pelvic spaces we might have to contend with sinuses which may become septic and from which the patient may die. I understand it is now considered best to drain as little as possible; at least not to leave the gauze in for any length of time to create an infected tract. I do not believe it is as wise to place a posterior drain in as to thoroughly wash.

DR. P. F. CHAMBERS.—I do not believe gauze drainage does any good after twenty-four or thirty-six hours. I think Nature shuts it off after that time, and it does not drain anything beyond the point where the gauze is. I much prefer making the abdominal cavity thoroughly aseptic by washing out and cleaning at the time. Where I have used drainage I have had the best results from the use of Hyde's drainage tube. It is a glass tube with a partition, the gauze going in at one point and emerging at the side of the partition. One can take the tube, even in the abdominal cavity, and move it about, thus thoroughly draining different places. The gauze drains the immediate section and nothing else. But, as stated, I would rather depend more

upon making the wound thoroughly aseptic than resorting to any form of drainage.

DR. MALLETT.—Can the Hyde tube be inserted through the vagina?

DR. CHAMBERS.—Yes, or through the abdominal wound.

DR. PAYNE.—Several of the gentlemen have spoken of flushing out the abdomen sufficiently. That is interesting to me. I have made some experiments along these lines with Croton water. I obtained samples of water on five different days, hot and cold. The water from the hot tap was absolutely sterile; that from the cold tap was analyzed, and from the plates I made I isolated the organisms and inoculated guinea-pigs. No trouble followed. I would suggest that where sufficient sterile water is not available we use tap water. If we cannot get abundance of water, the hot water is sterile and the cold water will not set up anything that will give peritonitis.

DR. GRAD.—At the time I saw the patient it was a question whether or not to do posterior section for drainage or open from above to find out what the trouble was, as there was a question whether there might not be intestinal obstruction present. There was retching and vomiting, and the bowels had not moved in two or three days. For that reason the abdominal route was chosen. Then, again, it was found that the vagina was so thoroughly infected that it would have been impossible to do any work there in a clean manner. As it was, by simply changing my gloves I was able to be absolutely clean in entering the abdominal cavity.

Dr. Broun touched on a very important point when he put the question, Shall we open the abdomen in those cases where we are positive that a rupture of the uterus is present? That these uterine tears heal kindly and need no surgical intervention there can be no doubt. I may be permitted to relate a case of rupture of the uterus coming under personal experience. I was asked by a gentleman uptown to deliver an occipito-posterior which had been impacted in the pelvis something like eighteen hours. I did not think I had used any considerable amount of traction, but when the head was extracted, the child born, and the placenta delivered, I discovered a mass of omentum in the vagina, moving up and down with each respiration. No doubt there was an opening into the peritoneal cavity. I put a pair of volsella forceps on the cervix, pulled the uterus out of the vulva, placing a few well-directed silkworm-gut sutures in the cul-de-sac. The vagina was kept clean and the woman made a good recovery. I think communications into the peritoneal cavity need not terminate fatally.

I take the point very well which Dr. West brought out. I felt that if I had a long glass tube like the Hyde tube it would have been the best thing I could use, but it was not at hand. It is a very difficult matter to deal with these cases in some of the

tenement houses. I think I did the best that could have been done under these conditions.

In regard to Croton water, mentioned by Dr. Payne, a few years ago I had occasion to see a patient with a severe hemorrhage. She was absolutely pulseless; so much so that a hypodermatic of whiskey given by her medical attendant remained in the tissues where it was injected. I did not have time even to sterilize or boil the water. I transfused over a gallon of Croton water and the patient recovered, showing that Croton water is safe to use even for intravenous injections.

The newly elected officers of the Society are: *President*—Dr. Bache McE. Emmet; *Vice-President*—Dr. George H. Mallett; *Editor*—Dr. Herman Grad; *Secretary-Treasurer*—Dr. Sumner Shailer, No. 2 Stratford Place, Newark, N. J.

H. GRAD,
Editor.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

PROCEEDINGS OF THE FIFTEENTH ANNUAL MEETING, HELD AT CINCINNATI,
OHIO, NOVEMBER 11, 12, AND 13, 1902.

The Association met at the Grand Hotel under the presidency of Dr. W. E. B. DAVIS, of Birmingham, Ala.

Dr. L. H. DUNNING, of Indianapolis, Ind., read a paper on

CONSERVATIVE OPERATIONS UPON THE OVARY.

He reported his experience with more than one hundred cases operated upon by himself. He employed the method of incising small single cysts, removing the lining membrane, trimming away the redundant portion of the outer wall of the cyst, and joining the edges of the incision by a running stitch of fine catgut. Single hematoma was treated in a similar manner. In a few instances he had used the thermocautery to check hemorrhage, and in other instances he had punctured several small cysts and dropped the ovary. He reported gratifying results in 80 per cent of cases. After a few trials he rejected conservative methods in pus cases and in cases in which there were numerous small cysts in all parts of the ovary. He found conservative work unsatisfactory in sterile married women, and in interval appendicitis operations in which there was a markedly cystic right ovary. In his series there were known to be six cases of pregnancy in which the patients were happy mothers, and there was a group of ten cases in girls and young women from whom he had extirpated an ovarian tumor from one side and had done a conser-

vative operation upon the other ovary, with a large measure of success.

Even should a considerable per cent of failures to cure appear, the writer would continue to do conservative work. He believed that the reason we were not able to select cases was that cystic degeneration of the ovary was a progressive disease, the limits of which gynecologists were not able at present to predict. It was hoped that with increasing knowledge we would be better able to select the curable cases for operation.

DR. GEORGE H. NOBLE, of Atlanta, Ga., had done considerable conservative work on ovaries in such cases as the author had mentioned, and he thought it was the proper thing to do. He indorsed the paper *in toto*.

DR. HENRY T. BYFORD, of Chicago, said that formerly ovaries were removed extensively by gynecologists, and that now there was a sufficient number of cases on record to determine what effect the removal of the ovaries had on young people. He recalled a number of cases from whom he had removed the ovaries, the operations having produced no harm or mental effect. In fact, in many cases the women had been in better health since the operation. Conservative operations, if aseptically and properly done, should be followed by good results without necessarily removing the ovaries.

DR. WALTER P. MANTON, of Detroit, Mich., began conservative work on the ovaries several years ago, and had found that in the majority of instances he succeeded in relieving the symptoms. He had, however, had a few unsuccessful cases, which led him to be sceptical in regard to the good work which he might have done formerly. A short time ago he said he removed the left appendages and resected about two-thirds of the right ovary, the patient making an excellent recovery; but three months later the patient returned to him with symptoms of backache and desired another operation. At this time he made a vaginal section and found a small tumor, the size of a filbert, embedded in the posterior vaginal wall at the junction of the cervix. The right ovary had undergone cystic degeneration, the cyst being the size of a hen's egg. The cyst contained ovarian structure and was unquestionably the remnants of the right ovary. Resection of a cystic ovary or the puncture of cysts of the ovary, followed by swabbing with carbolic acid and alcohol and sterile water, gave satisfactory results.

DR. GEORGE J. ENGELMANN, of Boston, said all were agreed that it was desirable to leave as much of the ovarian tissue as would preserve the sexual activity, and the question naturally arose, How much could be removed and the menstrual function still be preserved, thereby relieving the patient? He mentioned a case that was operated on by him some twenty years ago, in which there was a large ovarian tumor on the left side with adherent tube. On the right side there was a cyst the size of an orange, with a long pedicle, and apparently the tube was partially adherent and diseased. The entire left tube and ovary were re-

moved. The patient menstruated regularly from the day of the operation and had done so ever since. The larger part of the right tube was left, the pedicle being about one-half the thickness of a lead pencil. With the small amount of ovarian tissue left and a part of the tube, the function of menstruation was preserved.

DR. J. G. EARNEST, of Atlanta, Ga., stated that the gynecologist should always make a clear statement to the patient as to what she might expect from a conservative operation or from a radical one.

DR. A. M. CARTLEDGE, of Louisville, Ky., did not think the Association should go on record as advocating the removal of both ovaries in young women simply because they had pus tubes. Many young women consulted the gynecologist with acute suppurative salpingitis, but whose ovaries were normal, and he thought it was outrageous to unsex them. In every case he recommended leaving a piece of an ovary, if it was not larger than a grain of corn.

DR. RICHARD DOUGLAS, of Nashville, Tenn., thought the last speaker had misunderstood the essayist, in that he did not advocate the removal of healthy ovaries when the tubes alone were affected, but discountenanced the resection of infected ovaries. With this he agreed with the essayist. When an ovary was infected any conservative procedure was useless. When the tube was involved, and not the ovary, the ovary should be left under all circumstances.

DR. EDWIN WALKER, of Evansville, Ind., made a plea for a more accurate diagnosis in these cases, saying that many of these patients suffered from other diseases or neuroses independently of the genital organs.

DR. A. MORGAN CARTLEDGE, of Louisville, Ky., followed with a paper on

THE SURGICAL TREATMENT OF PANCREATIC CYSTS, WITH A REPORT OF TWO CASES.

Cysts of the pancreas, while rarely encountered, were still the most common pathological condition of this deep-seated organ that surgeons were called upon to treat. There was little doubt but that the field of surgery, as applied to the pancreas, should be extended, and some of the more recent contributions to the subject, he thought, should attract the attention of surgeons to this almost unexplored region of the abdomen.

According to Böckel, whom the author quoted, the cases treated surgically now numbered 115. In 99 of these the cyst was opened at the first sitting, with the result that 92 recovered and 7 died. In 16 cases the cyst was opened subsequently, after the formation of adhesions, with 16 recoveries and no deaths. He thought this spoke well for the treatment by incision and drainage. The same author (Böckel) had collected 25 cases where either complete or partial extirpation of the sac was practised, with 4 deaths.

A comparison of the results shown by statistics would seem to indicate that incision and drainage should be practised as a routine procedure in pancreatic cysts; and yet a closer study of the clinical forms which the cyst might present, together with a more careful study of the convalescence of the drained subjects, might cause surgeons to attempt extirpation of the sac more frequently and with better results.

The author's experience with the treatment of pancreatic cysts was limited to two cases. The first case was a woman, unmarried, 31 years of age. The second was a woman aged 45. One case was treated by incision and drainage, and the other by enucleation of the cyst. Both patients recovered. These cases were reported in detail.

DR. C. H. MAYO, of Rochester, Minn., mentioned briefly three cases of pancreatic cyst that had come under the observation of his brother and himself. In one case fat necrosis was very marked and noticeable.

DR. L. H. DUNNING, of Indianapolis, Ind., had never encountered but one case, and this was associated with stone in the ampulla of Vater. The cyst was large, and there was an extensive accumulation of bile within the gall bladder, with dilatation of the gall bladder. Chocolate deposits were observed in the cyst wall.

DR. RICHARD DOUGLAS, of Nashville, Tenn., said that Mr. Jordan Lloyd, of England, had emphasized the fact that there were true and pseudo-cysts of the pancreas. The recent work of Mayo Robson and others, he thought, had shown the relation between gall stones and pancreatic disease, and it was possible in this connection we might have a true solution of the pathology.

DR. ALEXANDER HUGH FERGUSON, of Chicago, mentioned three cases of pancreatic cyst, one of them being a hydatid cyst of the pancreas. This case he treated by drainage, suturing the pseudo-cyst to the skin and packing with gauze. The girl recovered.

THE CURSE OF GONORRHEA.

DR. JOSEPH TABER JOHNSON, of Washington, D. C., followed with a paper on this subject, saying that so many sad cases of pelvic disease of specific origin were constantly coming under the care of those in charge of the female clinics in the dispensaries, and in the gynecological wards of public hospitals, that it was almost impossible to over-estimate the importance of this subject. The evidence was indisputable and overwhelming that many women lost their lives annually from the pelvic inflammations caused by these complications, and that thousands probably lost their health or their power of conception from the same cause. From the best statistics he had been able to obtain, there were three hundred thousand women in this country leading lives of prostitution, and the estimate was made by health officers and the superintendents of police in thirty large cities, who made re-

ports on this subject, that for every woman who regularly resided in a house of ill-fame there was at least one, if not more, just as bad, who never or rarely became known to the police. This would give half a million, at the lowest estimate, of candidates for this disease in our country alone.

The chief danger of gonorrhea in the female was the infection of the uterus and uterine appendages. Gonorrhea was the chief source of salpingitis and pelvic peritonitis. Other complications were mentioned by the essayist.

A point which he laid great stress on was that gynecologists should make themselves more certain in the future than they had done in the past that patients of both sexes were absolutely cured, beyond the danger of a relapse, before they were dismissed from further observation, control, and treatment.

DR. WALTER P. MANTON, of Detroit, Mich., read a paper on

CHRONIC APPENDICITIS AND MOVABLE RIGHT KIDNEY.

He stated that while the practitioner had become familiar with the symptoms and diagnosis of acute appendicitis of the chronic form, which was often productive of great physical distress and suffering, but little was as yet known. As an etiological factor in the production of chronic appendicitis, he called renewed attention to movable right kidney, the association of which with appendicular disease was first pointed out by Edebohls in 1894.

In the writer's experience movable kidney was the most frequent cause of chronic appendical disease.

In 200 consecutive cases from his note books the essayist found that the right kidney showed an abnormal mobility in 36½ per cent, and in 65½ per cent, nearly, of these cases a diagnosis of chronic appendicitis was also made. In 22½ per cent of this number the diagnosis was confirmed by operation. Among the other cases, some were of too mild a type to demand immediate intervention; the patients refused operation, or were now waiting for it to be performed.

Regarding the manner in which movable right kidney gave rise to the appendical affection, Dr. Manton accepted the theory of Edebohls as the most satisfactory yet offered, namely, that the kidney compresses the superior mesenteric vessels between the head of the pancreas and the spinal vertebræ, thus interfering with the circulation in the appendix and giving rise to congestion and subsequent inflammation in that organ.

He laid special stress upon two points:

1. That in obscure abdominal conditions a diagnosis should not be attempted until movable kidney and chronic appendicitis could be excluded by careful abdominal palpation.

2. That when nephroptosis and appendicitis were present, operations upon the uterus and adnexa would not be followed by a cure unless one or both of these conditions were also removed.

DR. BACON SAUNDERS, of Fort Worth, Tex., said, having had a

number of both conditions to deal with, he had not had experience which would lead him to believe that the two conditions were so commonly associated as was indicated by the paper. In other words, his experience had not led him to believe that most of his cases of chronic appendicitis depended upon movable kidney, although it was possible and the condition might have been overlooked.

DR. EDWIN WALKER, of Evansville, Ind., had noticed the coexistence of the two affections, but he had not found it in a large number of cases.

DR. ROBERT T. MORRIS, of New York, stated that since Edebohls published his paper he had given considerable attention to the association of appendicitis and movable kidney, and quite frequently, where there was a loose kidney pressing upon the superior mesenteric vessels, he had found that there was congestion of the cecum, and if a careful palpation was made the appendix would be found to be tense, and infective appendicitis would be more commonly found in such cases.

DR. CHARLES P. NOBLE, of Philadelphia, said he had operated on 100 cases of movable kidney, and, so far as his observation went, he did not think there was more than half a dozen of that number in which the appendix was involved.

DR. A. M. CARTLEDGE, of Louisville, Ky., thought the two affections were more frequently associated than according to the statistics given by the essayist.

DR. ALEXANDER HUGH FERGUSON, of Chicago, did not think there was any relationship between appendicitis and floating kidney *per se*. The most extensive cases of floating kidney he had encountered had no appendicitis whatever. The kidney might be down on the brim of the pelvis and resting on the tip of the appendix without disturbing it.

DR. SIMON P. KRAMER, of Cincinnati, O., spoke of the occasional occurrence of appendicitis with floating kidney.

DR. C. H. MAYO, of Rochester, Minn., said there was one class of cases in which the kidney was freely movable. One could fix the kidney and obtain a good result. In some of these he was now removing the appendix at the time of fixation of the kidney, to determine, if possible, the relationship between the two conditions.

DR. W. P. MCADORY, of Birmingham, Ala., did not think movable kidney had much to do in causing chronic appendicitis, yet the two conditions might occur frequently at the same time.

OPERATION FOR COMPLETE LACERATION OF THE PERINEUM.

DR. GEORGE H. NOBLE, of Atlanta, Ga., described a new operation for complete laceration of the perineum. The steps of the operation were given at length.

DR. J. WESLEY BOVÉE, of Washington, D. C., followed with a paper on

PREGNANCY AND LABOR FOLLOWING COMPLETE NEPHRO-
URETERECTOMY.

Removal of the kidney had become a frequent operation and no longer excited surprise or comment on the part of the medical profession. It was well understood that removal of a kidney, the function of which had not been previously suspended, entailed additional eliminative work upon the kidney of the other side. It must be admitted that one kidney was rarely able to perform the functions of two healthy ones, and that any extra taxation upon its eliminative powers incident to autointoxication of various forms was liable to seriously embarrass its functional activity. When nephrectomy was done for renal calculi with pyonephrosis or tuberculosis, the same condition was liable to be present, in some slight degree at least, in the remaining kidney. Its function was accordingly interfered with. Various investigators had found a marked toxicity of the urine during pregnancy. Nephritis during this condition was very common. Winckel claimed two per cent of women that were healthy before pregnancy had albumin in the urine during pregnancy, and, further, that six per cent of all pregnant women had albuminuria.

One notable fact in connection with the toxemias of pregnancy, or uremia, was that the amount of urea in the urine was always found markedly diminished. Another important matter in conjunction with pregnancy and labor was the changes in arterial tension, which varied during the following labor. It was generally understood, however, that the changes going on in the economy of the woman in pregnancy called for greater demands on the heart, liver, and kidneys, and any interference with the action of one or more of these organs resulted disastrously to the others. As elimination during pregnancy was increased, naturally the arterial tension would be expected to be correspondingly increased. During labor it rapidly rose, reaching its highest degree at the moment of the birth of the child and reaching its minimum at the time of expulsion of the placenta. It then rapidly increased to above normal, remained so for four or five days, and then returned to normal. Marked increase of arterial tension had been frequently observed in eclampsia and albuminuria. A kidney obliged to perform all the renal eliminatory work of the body, which was naturally increased during pregnancy and labor, was working under great strain. If it be crippled by traces of the condition which required removal of its fellow, this strain or taxation was of greater moment. He had been able to find recorded but two cases.

His own case of complete nephro-ureterectomy stood alone, though not varying from the two found in the literature from a practical standpoint. The report of the nephro-ureterectomy was reported to this Association at its last meeting. The operation

was done March 18, 1901, for pyonephrosis, renal calculi, and miliary abscesses in the ureter. April 15, 1902, after a normal labor of six hours, she was delivered of a male child weighing ten and one-half pounds. On the third day after delivery she complained of intense pain diffused over the abdomen, which, on the following day, became localized along the course of the left ureter. There was tenderness for several days after cessation of the pain in this region. The urine was carefully watched for calculi, but none were found. With the pain mentioned the temperature rose to 102°, and continued from 100° F. to 102° for nearly a week, when it gradually declined to normal. Urinalyses made during the pregnancy showed nothing abnormal except the presence of albumin. An examination of a catheterized specimen in July, 1902, showed: specific gravity 1022, albumin in large quantity, normal amount of solids and urea excreted, and no casts. Since the birth of her child she had breast-nursed it and had remained in splendid health.

A question of vital importance in these cases was the permanent effect of pregnancy and labor upon the remaining kidney. In the case of Steinheil the patient succumbed to the extension of the tubercular process to the remaining kidney. Whether pregnancy and labor caused this extension in part or entirely could not be determined. Certainly the woman had not suffered from renal trouble during the seven years following nephrectomy, but died one year and nine months after delivery. In Schramm's case no history of the patient subsequent to her discharge from the hospital was given. In the writer's own case the condition of the remaining kidney did not seem to be worse than before pregnancy. There was little doubt that pregnancy and labor following nephrectomy seriously jeopardized the life of the patient; that the renal complications must necessarily be greatly increased, and therefore induction of premature labor and other forms of treatment of these complications more frequently necessitated. In these cases the evidence of permanent impairment of the remaining kidney as a result of pregnancy and labor was by no means convincing, but his individual opinion was, as records were made of such cases the effects would be apparent.

THE PRESIDENT'S ADDRESS

was delivered by DR. W. E. B. DAVIS, of Birmingham, Ala., President of the Association. First he spoke of the early history of the Association and the events immediately preceding its formation.

In addition to honorary members, he recommended that the Association have another class, to be known as life members, these to be composed of men of great eminence who were more than 65 years of age or who had been members twenty years and had attended fifty per cent of the meetings.

He suggested that Dr. J. McFadden Gaston, of Atlanta; Dr. R. B. Maury, of Memphis; and Dr. Thaddeus A. Reamy, of Cincinnati, be recommended by the Council for this class of membership. He advised the Association to limit its membership to 200.

He urged the members to establish a memorial to the Association in Birmingham, the birthplace of the organization.

Dr. Davis paid a tribute to the medical profession of the South, and spoke of McDowell, Sims, and Battey as epoch-makers in surgery. He also referred in glowing terms to the work of Dudley, Paul F. Eve, Warren Stone, Dugas, and Pope. Of the many in recent years who had done excellent work, and who were now dead, he mentioned the names of McGuire, Yandell, Briggs, Rogers, Sr., Kinlock, Westmoreland, Sr., Campbell, Gilmore, Nott, Mastin, and Richardson.

DR. M. C. MCGANNON, of Nashville, Tenn., read a paper on

HEMATURIA.

DR. ALEXANDER HUGH FERGUSON, of Chicago, read a paper on
ANTERIOR TRANSPLANTATION OF THE ROUND LIGAMENTS FOR DIS-
PLACEMENTS OF THE UTERUS.

He said it was now over six years since he first carried out the principle of this operation. The abdominal wall was opened in the mid-line in his first two cases. He then thought it better to enter the abdomen through each rectus muscle, the skin alone being cut in the median line. After doing fifty cases in this manner he returned to the one incision in the abdominal wall, and that at the linea alba, then bringing the round ligaments through stab wounds, one in each rectus muscle. In about one-half of these cases he severed the round ligaments and brought their stumps through the rectus muscles, while in the remainder the ligaments were not cut at all. With this technique there was danger of bowel or omentum, or both, slipping between the transplanted round ligaments and the bladder, and producing such complications (strangulation of bowel, etc.) as had been known to occur after Kelly's suspension and other methods of hysterectomy. In order to prevent these complications, the writer had employed one of two procedures to render it impossible for bowels to slip around the uterus beneath the round ligament.

1. A continuous suture is made, running along the parietal peritoneum from the puncture in it and rectus muscle downward to the side of the bladder, and back posteriorly to the round ligament near the uterus. In this almost circular sweep of the needle and thread the peritoneum is caught up about every third of an inch. When the suture is tied an antero-posterior partition of folded peritoneum is thrown between the iliac and bladder regions on each side.

2. The round ligaments are fastened to the parietal peritoneum on each side from the internal inguinal rings to the artificial openings in the abdomen, through which they are transfixed. The redundancy of the peritoneum and the loose attachment of the parietal peritoneum in these regions enable this part of the operation to be done with comparative ease, especially when the patient is in the Trendelenburg position.

The technique of the operation, as the writer now performed it, was given, as follows:

Operation.—Place the patient in the Trendelenburg position. Make a median incision about three inches in length through the abdominal wall, the lower angle of which reaches the suprapubic fold, and dissect the fat and skin from the anterior sheath of the rectus muscle on either side of the abdominal incision, corresponding to its lower third. Pass two fingers of the left hand into the abdominal cavity on one side beneath the rectus muscle, already exposed anteriorly, to locate and protect the bladder; then make a stab wound through the rectus muscle, in the direction of its fibres, into the abdominal cavity between the two fingers, an inch from the median incision and an inch and a half from the pubic bone. Before withdrawing the knife, pass an artery forceps alongside of it into the peritoneal cavity, and with it take hold of the round ligament and a portion of the broad ligament beneath it near the uterus. Now insert the suture which is to prevent the bowel from slipping between uterus and bladder, or, for the same purpose, suture the round ligament to the parietal peritoneum, as already mentioned. Then drag the proximal end of the round ligament through the rectus muscle with the forceps already attached to it, and sew it and the subjacent portion of broad ligament to the anterior sheath of the rectus muscle, leaving a stump of about half an inch long between the parietal peritoneum and uterus. Deal with the other side in a similar manner. close the abdomen, and the operation is complete.

Advantages.—Dr. Ferguson claimed for the operation described the following advantages:

1. It is easy to perform, because all the structures involved are seen as well as handled while performing it.

2. The uterus is left free in the abdominal cavity, as no stitches or bands are attached to it.

3. There is no interference with the physiological functions of the organ—menstruation, conception, parturition, labor, or involution.

4. It has a wider range of application than any operation known to him.

(To be continued.)

REVIEW.

THE AMERICAN TEXT BOOK OF OBSTETRICS: For Practitioners and Students. By JAMES C. CAMERON, M.D., EDWARD P. DAVIS, M.D., ROBERT L. DICKINSON, M.D., HENRY J. GARRIGUES, M.D., BARTON COOKE HIRST, M.D., CHARLES JEWETT, M.D., HOWARD A. KELLY, M.D., RICHARD C. NORRIS, M.D., CHAUNCEY D. PALMER, M.D., GEORGE A. PIERSAL, M.D., EDWARD REYNOLDS, M.D., HENRY SCHWARZ, M.D., J. CLARENCE WEBSTER, M.D.—RICHARD C. NORRIS, M.D., Editor, and ROBERT L. DICKINSON, M.D., Art Editor. With nearly 900 illustrations. *Second Edition, revised.* In two volumes. Philadelphia and London: W. B. Saunders & Co., 1902.

The second edition of this famous work is very near to ideal perfection in the teaching and diction of the text, the choice and drawing of the illustrations, and the beauty of the typographical work. It bears throughout evidences of careful revision, some of the chapters having been entirely rewritten. Dr. J. Clarence Webster has been added to the list of authors in the place of the late Dr. Etheridge, while the chapters by the late Drs. Parvin and Earle have been partially rewritten by the editor, Dr. Norris. As a matter of convenience in handling, the work is now presented in two volumes of about 550 pages each.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Hydatid Mole and its Relation to Deciduoma Malignum.—D. Berry Hart (*Jour. Obst. and Gyn. Br. Emp.*, Nov.) finds that where the villi tips touch the serotina a condensed layer of reaction forms, and thus we both get absorption going on and undue penetration into the decidua avoided. The normal villi do not, however, remain the same during pregnancy. The syncytium thins greatly and in part disappears, Langhans' layer becomes less active, and the connective tissue becomes more fibrous. This means differentiation, a passage from embryonic type to a higher, more organized condition. Hart has endeavored to show that this change is due to the action of the fetal thyroid, which has a stimulating effect on connective tissue and epithelium. The writer suggests that, as the result of the non-development of the embryo before the thyroid develops, we get the chorionic tissues unaffected by thyroid secretion and thus re-

maining an undifferentiated tissue. Its syncytium and Langhans layer thus retain their destructive activity, break through the fibrin layer, and may in special cases, when not cast off, destroy markedly the decidua serotina and even penetrate the uterine layer. When part of the mole is retained its dangerous power lies in its phagocytic burrowing tendency, its penetrating the blood vessels, and its non-coagulant power. It thus gives rise to metastases in the blood vessels, and, when unchecked, causes death by loss of blood and marasmus. It is then malignant. The proportion of cases of deciduoma malignum following a mole is very low, probably less than one in a thousand, although half the cases of deciduoma malignum are preceded by hydatid mole. There is at present nothing in the microscopic examination of a mole to show that it will be followed by deciduoma malignum.

Hydatid Cysts of the Pelvis and Abdomen.—J. Franta (*Ann. de Gyn. et d'Obst.*, June) attempts to prove the unfavorable effect of pregnancy, labor, and the puerperium in the case of hydatid cysts by showing the preponderance of women between 20 and 40 years of age among those affected, this period corresponding to that of the greatest sexual activity. He also compares the statistics of 1,291 male and 1,504 female cases, showing the relatively large number of women in whom hydatid cysts occurred during the child-bearing period. Before the age of 20 these figures showed 131 more men than women; after 40, 310 more men than women; while between 20 and 40 the women outnumbered the men by 311. Of the hydatid cysts of the female genitals and pelvis 71 per cent of the 500 cases occurred between the twentieth and fortieth years.

Uterus Didelphys.—J. H. E. Brode (*Lancet*, Nov. 15) reports a case of gestation and labor at full term in a uterus didelphys. The deformity was discovered about six months after the birth of the first child, at which time the septum interfered with coitus. The septum was removed, and later the woman was delivered of a second full-term child without trouble.

Uterus Duplex.—A rare instance of double uterus is described by Carl v. Pauer (*Cent. f. Gyn.*, No. 25). The patient had complained of dysmenorrhea and later of constant pain in the left side of the abdomen low down, where a tumor was discovered. Vaginal examination showed a cervix protruding into the vagina from the right side, and to its left a large fornix through which was felt what seemed to be the lower extremity of a tumor of the left appendages. Laparotomy revealed a well-formed uterus with right-sided appendages on the right side, and on the left a rudimentary uterus without cervix and connected with the vaginal vault only by a band of tissue. This uterus, which was entirely separated from the other, was filled with retained blood, and was covered by the tube of the left side, which formed a large hematosalpinx. This uterus and its appendages were removed.

Symphyseotomy.—Cornelius Cristeanu (*Ann. de Gyn. et d'Obst.*, Aug.) reports two cases and discusses the subject of symphyseotomy. He advocates the use of a simple armamentarium—a bistoury, a forceps, two retractors, a Reverdin needle, and two compression forceps. He would always apply forceps before performing the operation, and, if moderate tractions were ineffectual, would leave the forceps applied to the fetal head while doing the symphyseotomy. Maternal infection is not regarded as always contraindicating the operation, as the latter may save the child and does not increase the infection. The soft parts should be united by a single line of sutures, it being absolutely useless to suture the bones or fibrous tissues. The wound requires only an aseptic dressing. The use of a retention catheter is condemned. Immobilization of the divided pelvis is considered a disadvantage, as tending to cause retention of lochia and interfering with dressing of the wound and vaginal injections.

Ectopic Gestation.—According to F. A. L. Lockhart (*Montreal Med. Jour.*, Nov.) one should remove an early, growing, unruptured tubal-gestation sac as soon as possible. Just as assuredly should one cut down upon and remove a ruptured sac, unless several hours have elapsed since rupture and it is certain that all hemorrhage has ceased, in which event one should watch the case carefully and be ready to interfere immediately upon the ovum showing any tendency to increase in size. If the patient cannot be kept under close observation, operate at once. If the patient is not seen until the seventh or eighth month, wait until full term in the hope of saving the child as well as the mother.

Intraperitoneal Hemorrhage.—Charles S. Cullingworth (*Jour. Obst. and Gyn. Br. Emp.*, Nov.) relies principally upon the following symptoms in making a diagnosis of diffuse intra-abdominal hemorrhage due to rupture of an ectopic gestation: (1) The fact that at the moment of the attack the patient was in her usual health. (2) The gradually increasing pallor of the patient, and the gradually rising pulse rate with a corresponding rise of temperature. (3) The extreme tenderness of the abdomen; this marked tenderness may be observed when there is no visible sign of inflammation. (4) If a menstrual period has been missed or is overdue the diagnosis of the case is greatly facilitated; but it does not follow that, because menstruation has been regular, rupture of an ectopic gestation may be excluded. (5) Of less importance is the detection of free fluid which is occasionally obtained in patients with thin walls and extensive effusions. On vaginal examination the signs are not very definite. There is often a slight hemorrhage from the vagina. It is now unanimously agreed that in this condition prompt surgical treatment is required. In pelvic hematocele the two most constant symptoms are irregular hemorrhages and pain. The discharge is for the most part dark in color, moderate in amount, fairly thick in con-

sistence, and steady in its flow. The pain is usually sudden in its onset and at first very severe, and in a few hours may for the time pass off altogether. Among other symptoms may be mentioned faintness, nausea and vomiting, and an occasional rise in temperature.

Cause of Eclampsia.—Hermann Müller (*Arch. f. Gyn.*, Bd. lxvi., H. 2) reviews the theories of the origin of eclampsia, pointing out objections to each. He claims that the identity of the pathological lesions found in the various organs points to the existence of a common cause. He says that the similarity of the anatomical lesions to those caused by other poisons indicates that a toxic agent is the etiological factor. The fact that no one organ is constantly the most severely involved makes it improbable that any one is the primary origin of the disease of the others. The occurrence of the same changes in the fetal organs shows that the poison is carried by the circulation. As to the site of the origin of the eclamptic toxic agent, it is remarked that in cases occurring in the puerperium the source cannot be the placenta or fetus and must be in the mother. Continuing his reasoning, Müller holds that eclampsia is a general poisoning giving rise to three cardinal symptoms: fever, renal disturbance, and nervous phenomena. The place of origin of the poison is the uterine cavity, and the active factor in its production is the action of bacteria upon decomposable material. High intrauterine pressure favors rapid and extensive absorption of the toxic material. The constant rise of temperature in eclampsia points to the action of bacteria.

Walter Albert (*ibid.*) also supports the theory of the causation of eclampsia by absorption of a poison of bacterial origin in the uterine cavity.

Myxedema, Parturition, and Eclampsia.—On account of the participation of the genital organs in the general lack of development, pregnancy is of uncommon occurrence in cases of myxedema. An interesting case from this and other points of view is reported by A. Herrgott (*Ann. de Gyn. et d'Obst.*, July). The woman, 18 years of age, presented the general appearance of a girl of 11. The breasts were slightly formed, the pubic and axillary hair absent. No thyroid could be palpated. The pelvis was of the infantile type. The intellectual development was fair. She was first seen at the onset of labor. As dilatation was slow a bougie was inserted on the second day. On the third an eclamptic seizure occurred. The following day labor was completed by artificial rupture of the membranes, after the twelfth eclamptic attack. Eight others followed delivery, but complete recovery eventually took place. On admission the urine contained no albumin and at no time was more than a trace found. There were no premonitory symptoms of eclampsia. In view of the nervous symptoms produced by thyroidectomy and known as post-operative tetany, and of the functions ascribed to the thyroid and parathyroids, Herrgott questions whether the convulsive

seizures in the case reported, which have so many features in common with post-operative tetany, were not due to parathyroid insufficiency. He thinks that this may be a cause of eclampsia as well as impaired renal or hepatic activity.

Puerperal Infection.—Perret (*L'Obst.*, July and Sept.) furnishes a statistical report of the isolation service* at the Clinique Tarnier from November 1, 1900, to November 1, 1901. Of the 127 cases, 48 were infected before reaching the clinic. Of these, one died, a mortality of 2.1 per cent. Of the 79 infected after arrival, one treated by hysterectomy died, a mortality of 1.26 per cent. Digital curettage, swabbing, douches, subcutaneous injections of salt solution, and feeding are the points in treatment emphasized.

Septicemic Form of Puerperal Infection.—Since Fochier advocated, in 1891, the treatment of general pyogenic infectious diseases by the formation of local abscesses, the method has been employed in pneumonia, typhoid, erysipelas, scarlatina, and puerperal infection. Henri Chéron (*L'Obst.*, Sept.) publishes the histories of a number of cases of puerperal infection in which the method was applied. The technique consisted in the injection into the flank or deltoid region of a cubic centimetre of sterilized essence of turpentine. The resulting abscesses were opened and dressed as soon as they commenced to invade the skin. The occurrence of suppuration after such an injection gives a favorable prognosis. The formation of an abscess seems to be accompanied by cessation of febrile symptoms. When the puerperal infection is of rapid evolution and severe, the formation of an abscess should be accompanied by digital curettage and swabbing the uterus. When the virulence of the infection appears slight, curettage and swabbing should be tried. Rapidity in applying the treatment seems to be of importance in obtaining a good result.

Early Miscarriage.—L. V. Friedman (*Bost. Med. and Surg. Jour.*, Nov. 20), in all cases where a high temperature is indicative of sepsis, or where the pulse rate or quality has been affected by the bleeding, empties the uterus at once. Where neither of these conditions exists the treatment should be directed to the conservation of the ovum. Having decided upon radical measures, ergot and tampon are to be used. The tampon is seldom necessary in cases under four months, as the small amount of requisite dilatation is obtained with rapidity and with little bleeding. When it comes to emptying the uterus, instead of resorting to the curette at once, the finger will be efficient in a large proportion of cases. After the uterus is emptied it should be well irrigated with either bichloride of mercury, 1:5000, or saline solution.

Therapeutic Interruption of Pregnancy.—The duty of the obstetrician in regard to the interruption of pregnancy in the interest of the mother has been the subject of much discussion. Before the International Congress of Gynecology and Obstetrics

held in Rome in September, 1902, Adolphe Pinard (*Ann. de Gyn. et d'Obst.*, Sept.) defines the indications for the procedure furnished by the general diseases. He summarizes by stating that gestation should be artificially terminated in all cases in which a disease caused or aggravated by the pregnancy threatens the life of the mother. He classifies these as (1) caused by the pregnancy: uterine hemorrhage, hydramnios, mole, toxemias; (2) aggravated by pregnancy: diseases of the circulatory, of the renal, or of the respiratory system. None of the acute intercurrent diseases are considered as justifying abortion. In cases of uterine hemorrhage it is absolutely and immediately indicated when the pulse is persistently above 100. It should be performed in hydramnios when there is more or less generalized edema with dyspnea, orthopnea, and asphyxia; or rapid uterine distension with severe diaphragmatic or abdomino-costal pains, dry earthy skin, marked emaciation, and scanty urine—the so-called acute febrile hydramnios. In hydatidiform mole the uterus should be emptied as soon as the diagnosis is made, on account of the danger of cachexia, hemorrhage, or malignant degeneration. In toxemias, interruption of pregnancy is advisable when uncontrollable vomiting is accompanied by persistence of the pulse above 100; in albuminuria, when vigorous medical treatment fails to diminish the albumin and cerebral, visual, and respiratory symptoms continue; in eclampsia, Pinard does not consider the necessity of performing abortion proven; in toxic neuritis, the severity of the affection must be the guide. In considering the question of intervening in severe cases of cardiac disease the indication is a combination of asystole with dyspnea and signs of asphyxia. In complicating nephritis there is no definite rule to be followed, but if the excretion of urine for twenty-four hours falls below 800 to 1,000 cubic centimetres Pinard usually induces abortion. In pulmonary tuberculosis the pregnancy should simply be watched and the disease treated. Following these indications, the writer interrupted pregnancy but twenty times, with fifteen successes, in 22,708 cases.

Prognosis and Treatment of Criminal Abortion.—Maygrier (*L'Obst.*, July) finds 47 per cent of recoveries in seventeen cases of criminal abortion which were operated upon within two days after the appearance of symptoms, and less than 35 per cent of successes when the operation was delayed until the third day or later. For this reason he favors emptying the uterus at once in cases of inevitable or partially accomplished abortions brought on by criminal means, and particularly in those in which septic symptoms have appeared. Of the writer's 40 cases 25 died.

Acute Edema of the Cervix During Pregnancy.—In a patient of H. Varnier (*Bull. de la Soc. d'Obst., de Gyn. et de Ped. de Paris*, May) the uterus prolapsed suddenly at the seventh month. Examination showed the cervix protruding nine inches from the vulva, while scarification allowed the escape of serous liquid from the edematous cervix. The cervix was re-

placed, but the protrusion of that structure took place several times afterward. Measurement of the cervix and uterus after delivery showed that there was no hypertrophy of the cervix and that the temporary elongation must have been due to acute edema.

Bossi's Dilator for the Cervix.—G. Leopold (*Arch. f. Gyn.*, Bd. lxvi., H. 1) gives a favorable report of the use of Bossi's dilator when rapidity is required. He employed it in seven cases of eclampsia, two of contracted pelvis, and one each with advanced tuberculosis, severe uterine pain, and high fever. In all dilatation was accomplished in from twenty to thirty minutes. The cervix was torn in three instances. All the cases of eclampsia recovered.

Labor with Rachitic Pelvis.—After giving an elaborate statistical review of the cases of delivery with contracted pelvis at the Clinique Tarnier from March, 1898, to January, 1902, J. L. Valency (*L'Obst.*, Sept.) briefly recapitulates his views. He feels that in a moderately contracted pelvis, one whose diagonal conjugate is between 9.5 and 11 centimetres, spontaneous termination of labor is not exceptional. Whenever the degree of contraction is not so great relatively to the biparietal diameter as to show the necessity of inducing labor before term, the treatment should be expectant, watching the condition of the mother and the fetal pulse. In case of necessity forceps or version will rapidly terminate delivery.

Hematoma of the Umbilical Cord.—A. Couvelaire (*Comptes rendus de la Soc. d'Obst., de Gyn. et de Ped. de Paris*, June) presents a specimen showing a hematoma of the umbilical cord resulting from a slight rupture of the umbilical vein, probably while releasing the cord, which formed a tight loop around the neck.

Cholecystitis at the Time of Labor.—Potocki (*Comptes rendus de la Soc. d'Obst., de Gyn. et de Ped. de Paris*, June) describes a case in which he operated successfully for suppurative cholecystitis a few hours after labor. The chief interest lay in the difficulty of diagnosis. Before delivery the tumor was to the right of the uterus in the right flank and pointing toward the right lumbar region. In this position it would suggest appendicitis, or torsion of a tumor of the uterine appendages. After delivery the gall bladder was felt in its usual situation.

Psychosis and Labor.—L. Stouffs (*Bull. de la Soc. Belge de Gyn. et d'Obst.*, t. xiii., No. 2) describes an unusual labor in a primipara of 20. After a violent hystero-epileptic attack she remained unconscious for thirty-six hours. During this time she gave birth to a child. After the labor she was extremely restless and delirious. Examination, which was possible only under chloroform, showed uterine inertia and retained placenta. After this she remained somnolent until the next day, when she suddenly recovered and insisted that she was unaware of having been delivered.

Postpartum Necrosis of Uterine Fibroid.—One of the dangers connected with fibroids complicating pregnancy is illustrated by a case of L. Stouffs (*Bull. de la Soc. Belge de Gyn. et d'Obst.*, t. xiii., No. 2). Four weeks after delivery he removed a pedunculated subperitoneal uterine fibroid which was undergoing necrosis on account of the retraction and obliteration of its blood vessels, caused by the contraction of the uterus after labor.

Progressive Increase of Secretion of Breast.—The compensatory power of the human breast is shown by Quillier (*L'Obst.*, July) in a report of three cases of mammary abscess. In two of these the affected breast was stopped and soon the other furnished all that was required. In the third case the secretion was fully re-established in the affected breast after a month of complete inactivity. In the words of the writer, the breast needs only to be trained.

Galactophoritis in the New-Born.—Louis Pierra (*L'Obst.*, July) describes three cases of enlargement of the breasts in infants, which he terms galactophoritis and which he says should be treated early by expression. He claims that in each case he expressed pus from the nipple, though he makes no mention of any microscopic examination to prove the nature of the fluid, and though he distinctly states that there were no enlarged axillary lymph nodes and no fever. His paper does not carry absolute conviction that there was more than a lacteal secretion in any of the reported cases, or that simple compression of the breasts by a bandage would not have given as favorable results.

Mammary Gland in the New-Born Child.—Keiffer (*Bull. de la Soc. Belge de Gyn. et d'Obst.*, t. xiii., No. 2) describes the development of the mammary gland, showing how extremely rudimentary it is until nearly the end of gestation. The mammary development and lacteal secretion which occur a few days after birth begin by an unusual proliferation of all the epithelial cells, forming an adenomatous neoplasm. This is followed by a transformation of these cells into milk in a way slightly different from that in adults. To account for this precocious lactation he advances the theory of an internal secretion of the placenta whose action is to stimulate secretion by the breasts of both mother and fetus. That this does not occur except in the fetus at term is accounted for by the rudimentary condition of the gland before that period. The hypothetical internal secretion is supposed to be set free in the circulation at the time of separation of the placenta. Results of experimental subcutaneous injections of bitches with human placental extract were not uniform or conclusive. It is possible, however, that the placental secretion is specific for animals of the species from which it is derived.

GYNECOLOGY AND ABDOMINAL SURGERY.

Hysterectomy for Uterine Fibroids.—Alban H. G. Doran (*Lancet*, Nov. 29) reports three cases in which he removed the uterus, on account of fibroids which blocked the pelvic outlet, dur-

ing early pregnancy. In one case there existed two fibroids, one blocking the pelvis; these were removed with the five-months pregnant uterus. In another case hysterectomy was performed at the fifth month of pregnancy on account of a large fibroid, situated on the posterior wall of the uterus, which obstructed the pelvis. In a third case a similar condition existed and the uterus was removed at the fourth month. All the cases recovered.

Total Abdominal Hysterectomy for Uterine Cancer.—C. Jacobs (*Bull. de la Soc. Belge de Gyn. et d'Obst.*, t. xiii., No. 2) publishes his statistics of radical operations by the abdominal route for cancer of the cervix from January, 1897, to March, 1902. The cases number 81. The immediate results were 6 post-operative deaths, a mortality of 7.4 per cent, the causes being respectively pneumonia, two cases of peritonitis from infection during operation, embolism, prolonged chloroform anesthesia in a cachectic subject, and progressive cardiac weakness. Of the 75 immediate recoveries, 74 were followed; but four were recent operations and one was so far advanced as to die within a few days. Of the remaining 69, there were 41 deaths from recurrence at periods varying from three months to two years and eight months. The 28 cases reported as permanent recoveries were so recorded at the following times: nine within less than a year, six between one and two years, ten between two and three, two between three and four, and one over four years after operation. Of these fatal cases, however, fifteen were so far advanced that a complete operation was impossible and death was inevitable. Of the 81 cases, only 8 had had preceding local lesions for which an operation upon the cervix had been performed. Only 14 gave any hereditary history of cancer. The maximum liability appeared to be between the ages of 35 and 55. Though occurring in nulliparæ, it was more frequently found in multiparæ. Recurrence took place most often in the intestines.

Secondary Carcinoma of the Internal Genitals.—C. Römer (*Arch. f. Gyn.*, Bd. lxvi., H. 1) reports two cases of carcinoma of the internal genitals secondary to neoplasms of the stomach. He uses these to emphasize the principle that in all cases apparently of primary carcinoma of these organs a thorough examination should be made, before undertaking a radical operation, to determine the freedom of other abdominal organs from the disease.

Inversion of the Uterus.—John W. Taylor (*Jour. Obst. and Gyn. Br. Emp.*, Nov.) describes a case of complete inversion of the uterus of seven months' duration. The uterus was replaced by dividing the anterior wall of the vagina and the uterus from the cervix to the fundus. So complete was the inversion that upon vaginal examination the vaginal wall appeared to be directly continuous with the inverted mucous surface of the tumor.

Fibroma of the Vulva.—Among the gynecological rarities is an oval vesical tumor, the size of a hen's egg, situated between the urethral orifice, labia minora, and anterior vaginal wall, described by Willi Thomass (*Cent. f. Gyn.*, No. 25). After removal it was found to be a pure fibroma.

DISEASES OF CHILDREN.

Diphtheria.—S. Gurney Champion and A. Le Vaughn (*The Lancet*, July 26, 1902) publish the statistics of 43 consecutive cases of diphtheria admitted to the Norfolk and Norwich Hospital during the past two years, it being their intention to show the value of tracheotomy and free administration of antitoxin in this disease. The cases admitted to the hospital were those suffering from laryngeal obstruction, and many of these were brought in *extremis*. Tracheotomy was performed in 39 cases, the result being that 29 of the patients recovered and 10 died (one child had ceased breathing before the operation had begun). Paralysis occurred in three cases; all recovered completely. One patient had a pharyngeal affection alone; no antitoxin was administered and the paralysis occurred 25 days after the onset of the disease. One patient had a pharyngeal, laryngeal, and nasal infection; 17,000 units of antitoxin were injected, and paralysis occurred on the fifty-fourth day of the disease. In a third case the patient had pharyngeal and laryngeal infection; 6,000 units of antitoxin were administered and paralysis occurred on the fifty-seventh day of the disease. Cultures were taken in 18 cases, showing the following results: in 5 there was a pure culture of diphtheria; in 6 a mixed culture of diphtheria and staphylococci; and in 7 pure cultures of staphylococci or mixed staphylococci and streptococci. As to antitoxin, an initial dose of 6,000 or 8,000 units—i.e., from 20 to 30 cubic centimetres of Parke, Davis & Co.'s preparation—was employed and in few cases it needed repetition. The indications relied on for pushing the antitoxin were: (1) persistent rise of temperature with other signs of toxemia; (2) abundance of membrane and dry inspissated mucus; (3) broncho-pneumonia; and (4) spread of disease and reinfection. The temperature usually responded to the initial dose and reached the normal by the third or fourth day after a gradual decline. In several cases dry inspissated lumps of mucus gave rise to as much trouble as pieces of membrane and required the use of mechanical means for their removal from the trachea. In these cases also pushing the antitoxin was followed by marked success. In all cases of broncho-pneumonia small doses—i.e., 2,000 units—were given once or twice daily until the temperature began to fall. One child had altogether 18,000 units of antitoxin during the first five days of treatment, with a resulting cure, the temperature, which had been previously sustained, gradually falling to normal after this date. The average dose given was 9,400 units, with a maximum of 33,000 and a minimum of 2,000 units. Two cases, in which 6,000 and 21,000 units were given respectively, developed further disease, the former a pharyngeal after a laryngeal infection, with a fatal result, and the latter a nasal and wound infection following primary disease in the pharynx and larynx. The patient in the latter case was discharged cured, but has since been readmitted owing to the breaking down of the tracheotomy wound, which, however, slowly healed under treatment.

The Education and Development of Neurotic Children.—Graeme M. Hammond (*N. Y. Med. Jour.*, Aug. 30, 1902) says that the question suggests itself whether there is any way during infancy of determining whether or not a child is of a neurotic predisposition. Often this cannot be done, but in many instances we see children in infancy acquiring diseases which clearly indicate that they have a neurotic predisposition; thus, infantile convulsions from such causes as indigestion, dental and intestinal irritations, chorea, night-terrors, and kindred nervous disorders clearly indicate the nervous child. As a rule, however, the neurotic condition begins to be displayed toward the fifth or sixth year or upward. Exceptional mental ability without corresponding physical strength is sometimes the early and only manifestation of the neurotic temperament. If precocious and clever in early youth, as neurotic children frequently are, they fail to achieve those positions in life which their early mental brilliancy seemed to promise. With the advent of puberty, or even before this time, nervous disorders are most likely to show themselves. In many instances the degenerate condition of the nervous system is shown in the character of the children; they are fretful, nervous, irritable, changeful in mood. It is at this time that migraine usually begins, epilepsy develops, and neurasthenic and hysterical conditions have their origin. The author holds that the neurotic predisposition can be effectually eradicated by a proper course of physical training conjoined with proper hygienic surroundings. With careful attention to the diet, sleep, various bodily functions, fresh air, and proper clothing, in addition to systematic, well-regulated, and long-continued physical culture, there should be no remains of a neurotic predisposition as the child enters into manhood. The physical culture of such children should be carefully conducted; where a moderate amount of exercise builds up, too much exercise breaks down. The age and physical condition of each child must be taken into consideration, and such exercises, preferably outdoor, should be followed as circumstances permit. Whatever those exercises may be, the proper point is their continuance with regularity for years. Practical experience has shown that by the methods just suggested children of undoubted neuropathic tendencies may without the shadow of a doubt develop into perfectly healthy men and women.

Empyema in Infants and Children.—Henry Koplik (*Med. News*, Sept. 13, 1902) describes the course of this disease. As to the physical signs, the main features may be as follows: (a) The pleural cavity may be full of fluid and still the voice and breathing will be normal or only slightly diminished in intensity over the whole chest anteriorly and posteriorly; (b) bronchophony and bronchial breathing with pleuritic râles may in some cases be heard over the whole of one side of the chest, the seat of effusion. Of greatest utility are the percussion note, the fremitus, and the displacement of viscera. The percussion note posteriorly is flat over the whole side. There is a

resistance which is detected by the finger on percussion, and which is quite characteristic in infants and children. Anteriorly the note on percussion varies widely. It may be hyper-resonant over the apex of the lung, due to lung compression. In most cases the fremitus is absent or diminished if the infant cries. On the left side the displacement of the apex of the heart, and on the right side that of the liver, are of confirmatory value. The diagnosis of fluid in the chest is not always a simple matter. No diagnosis is complete without exploratory puncture of the chest. The omission of such puncture is unjust to the patient. With ordinary care we do not subject the patient to any risk of further infection; we cannot readily cause a serous effusion to become purulent if ordinary cleanliness is exercised.

Charles N. Dowd (*ibid.*) writes on the surgical treatment of empyema, basing his report on seventy-five cases observed. His summary is the following: (1) For simple cases of empyema the following treatment is used: Excision of about one and a half inches of the seventh or eighth rib in the posterior axillary line; light ether anesthesia is usually employed; the purulent coagula are removed; short rubber tubing, cut partly across, doubled, and held by large safety pins, is used for drainage; abundant gauze dressing is applied and changed when saturated. (2) If the patient's condition contraindicates general anesthesia, an incision into the chest may be made between two ribs under cocaine anesthesia. (3) Aspiration is only used to give temporary relief in patients who are in great distress from the pressure of the fluid, or temporarily to relieve the second side of a double empyema after the first side has been opened. (4) The patients are allowed out of bed as soon as practicable, and the expansion of the lung is encouraged by forced expiration. (5) Irrigation is only used where there is a foul-smelling discharge from necrotic lung tissue. (6) Secondary operations are not done until good opportunity has been given for healing; usually three or four months should have elapsed after the primary operation, and there should have been no noticeable improvement for about a month. (7) In the secondary operation the expansion of the lung should be encouraged by incising, stripping back, and, if necessary, removing portions of the thickened pulmonary pleura. (8) The examination of forty-four of the patients at long periods after operation indicates that recovery is usually complete in the simple cases, and that there is surprisingly little deformity in most of the severe cases.

David Bovaird (*ibid.*), treating of the pathology of empyema, lays emphasis upon the following points: (1) Its frequency in children. (2) The frequency of bilateral cases. (3) The impossibility of drawing sharp distinctions between serofibrinous pleurisy and empyema. (4) The creamy consistence of the exudate in many cases. (5) The frequency of sacculated effusions. (6) The frequency of pneumonia, especially broncho-pneumonia, as a preceding or accompanying lesion. (7) So far as concerns

the bacteriology of empyema, the pneumococcus is present in the great majority of cases in children, especially in the thick, creamy exudates. The streptococcus or staphylococcus pyogenes is found in a much smaller percentage of cases, especially in those not associated with pneumonia and characterized by thin, purulent exudates. (8) Tuberculosis is present in but a small percentage (6 per cent) of cases.

The Importance of the Early Treatment of Catarrhal Conditions of the Upper Air Tract in Children.—Carolus M. Cobb (*Annals of Gyn. and Ped.*, Oct., 1902) says that the question naturally arises, in what way and to how great an extent does the condition of the upper air tract in children affect the general health? First, nasal obstruction, from whatever cause, leads to disturbances of sleep, to anemia from lack of sufficient oxygenation of the blood, to malformation of the chest wall, and to various reflex nervous disorders. Secondly, the mouth-breathing, and often the extension of the inflammatory process, cause attacks of bronchitis, and often the only way to prevent successfully the repeated attacks of bronchitis from which these patients suffer is to treat the nasal condition. Thirdly, there is no doubt but that these patients suffer from disorders of digestion from swallowing large quantities of the secretion of muco-pus which is constantly present in the throat, and which they have not the knowledge nor ability to expectorate. Fourthly, the presence of this inflammatory condition in the nose and throat is a fruitful source of infection of the cervical glands, and many cases of cervical adenitis, now classed as scrofula, are directly traceable to this inflammatory condition. Fifthly, many cases of general systemic infection are now known to have their origin in either acute or unrecognized septic conditions of the throat. As an illustration it is only necessary to allude to the reported cases of endocarditis and acute articular rheumatism caused by the products of a tonsillar abscess gaining access to the general circulation. With this formidable array of deleterious conditions which may, and often do, result from the neglect or non-recognition of these conditions of the nose and throat of children, it seems hardly necessary to urge the importance of careful attention to them.

Lead Poisoning in Children.—R. Romme (*La Presse Médicale*, Aug. 13, 1902) calls attention to the fact that children, even infants, may suffer from lead poisoning. Wet-nurses may be affected through cosmetics and hair-dyes, and communicate the intoxication through the milk, or they may put lead preparations on the nipples and so infect the child directly. Nursing bottles have been known to have lead tips. Water, cider, and beer, so-called seltzer water, rum, brandy, orange water, and syrups may all contain lead. Food cooked in utensils that have been soldered, or in pottery which has been varnished or enamelled with lead, can communicate the poison. White lead is used to adulterate flour; sugar and butter may contain it. Candies and cakes are often colored by lead chromate, and the paper wrappings of

candies and chocolate are often painted with lead preparations, as Naples yellow. The poison may be absorbed through the respiratory tract or the skin, from walls freshly painted, from the burning of old painted wood, from the wearing of silks and other fabrics loaded with lead. White varnished cloth used for canopies to baby carriages, toys painted with lead colors, lead soldiers, trumpets, paint boxes, glazed visiting cards, and colored envelope wafers, are all sources of lead poisoning to the child. Finally, white-lead powders dusted on excoriations, the acetate of lead used in solution on cuts or in collyria for chronic granular conjunctivitis, Goulard water used on a nurse's breast, can be incriminated. A curious case is on record of a child who was wounded accidentally during a hunt; some of the lead shot was left in the wound and became the source of lead poisoning.

Malignant Disease of Kidney in Children.—J. F. Percy (*Clin. Rev.*, Aug., 1892) reports the case of a boy of 15 years whose symptoms pointed to intestinal obstruction. Abdominal section disclosed the fact that one pole of the left kidney had fastened itself to the ascending colon through the parietal peritoneum. The abdomen was closed, and the kidney and ureter removed through a lumbar incision. Recovery was complete and without incident. After leaving the hospital the patient passed through an interesting series of changes. From having been quiet and almost effeminate, he became active and boylike. Nutrition improved. About six months after the operation he had a severe "cold," and with its onset two convulsions developed. For about seven months he was confined to his bed the greater part of the time, suffered intensely from headaches and a roaring sound in his head. He expectorated brick-dust sputum until within three weeks of his death, which occurred after severe convulsions and headaches. The report on the tumor found showed it resulted from cell inclusion from the hypernephron or suprarenal body. The author raises the question as to the source of the marked mental and physical improvement which followed the operation, and wonders how much the involvement of the suprarenal gland had to do with the former condition. The three points he emphasizes are: first, that the embryonal theory of the development of malignant growths has for its main support the theory of Cohnheim; second, that malignant disease of the suprarenal glands produces changes in the general organism unlike the changes produced when the kidney is the primary source of these changes; third, the embryologist, the bacteriologist, and the pathologist must observe further before important deductions by the physician and surgeon, necessary in the management of these cases, are made.

The Management of Rheumatic Children.—Floyd M. Crandall (*Arch. of Ped.*, Aug., 1902) considers this subject under four headings: clothing, exercise, diet, and medication. Modern medical opinion seems to tend strongly to the belief that acute articular rheumatism is an infectious disease. The specific germ

has not, as yet, been discovered, but the soil is necessary as well as the seed, and, as in other infectious diseases, we recognize predisposing as well as exciting causes. Hence the prevention of these predisposing causes may well receive attention. The rheumatic child should wear flannel at all seasons, though in the summer it may be of thin texture. Cold and wet feet should be avoided. Outdoor life should receive especial attention, rheumatic children often being confined too much to the house. But they should not be exposed on days of damp east wind, especially if the ground be covered by slush or melting snow. The diet was formerly looked upon as of more importance than it is at present. The trend of opinion now seems to be that restrictions of diet should be in the direction of starches and sugars, and with this belief the author strongly concurs. The rheumatic child is prone to be anemic, and a plain but generous and nourishing diet, which contains some nitrogenous matter, is the best. Milk, broths, plain soups, can be given during an acute attack, and weak lemonade or oatmeal water for thirst. As a prophylactic measure proper care of the throat and the removal of adenoid growths and enlarged tonsils must be strongly commended. We may, perhaps, thus close one of the important portals of entry to the rheumatic bacilli. In the same way as we administer quinine to prevent malaria, cod-liver oil for the strumous tendency, and iron for anemia, we may give the salicylic compounds to prevent acute outbreaks of rheumatism. Whenever there is a recurrence of any of the rheumatic symptoms, the author advises the use of salicylate of soda in doses of from three to five grains, three times daily for one or two weeks of each month, for months at a time. Hyperpyrexia is rare in the rheumatic attacks of children; when it does occur it should be treated with cold baths or packs, with perhaps small doses of phenacetin well guarded by stimulants. The rapid development of anemia is so marked a characteristic that the administration of iron should be begun at the earliest possible moment. Following Dr. Loomis' advice, that moment may be considered to be as soon as the temperature ranges below 100° F. Give a generous diet as soon as possible. Sometimes no improvement can be secured until iron and cod-liver oil are administered. Every rheumatic joint should be protected from the air by a flannel bandage or by cotton wool. A light splint of basswood or pasteboard will often give relief. Heat is more acceptable than cold, but the author seldom uses watery applications (except a lead-and-opium wash), as by their evaporation they cause more pain than relief. No blisters in young children. Children suffering from any rheumatic manifestation, even chorea, *should be put to bed and kept there absolutely until every symptom has disappeared.* This will do more than any other measure to prevent cardiac involvement. The patient should be placed between blankets instead of sheets, and a light flannel jacket should be worn. This will enable the child to sit up in bed without danger of exposure, and he will thus be less discontented during the days when the symptoms are slight.

The Mental Disorders of Children.—F. X. Dercum (*Phil. Med. Jour.*, July 19 and 26, 1902) discusses idiocy, imbecility, and also the insanities which occur in childhood. Delirium, confusion, and stupor occur quite frequently in infancy; melancholia, mania, and paranoia are very rare; the neurasthenic insanities occur, but more rarely than in the adult, and they do not as a rule present themselves in sharply-defined or well-differentiated forms. Dementia precox may come on about the time of puberty or later, and is characterized by two phases, one of depression, the other of expansion or exaltation, the transition from one to the other being gradual. In the treatment of feeble-minded children therapeutic methods prove of comparatively little value, except in the case of cretins, where thyroid medication has given brilliant results. In the treatment of the insanities of children we are forced to depend mainly upon the application of general physiological and hygienic principles. Discouraging as the outlook is at first sight, much is frequently accomplished. The object should be to force up nutrition by all possible means—rest methods, partial or complete; massage; full and, if necessary, forced feeding; exercise; bathing; out-of-door living. Tonics may be employed as indicated; in periods of excitement sedatives and narcotics may be given, but in a minimum amount, never continued for too long a period, and varied from time to time. When there is stupor or depression, thyroid extract may be tried. In a certain number of cases dementia precox ceases to progress, and in a small number the affection terminates in final and complete recovery. With such facts before us, no case should be abandoned as hopeless, but should be given the benefit of all the measures at our command.

Mental Defectives.—Martin W. Barr (*Phil. Med. Jour.*, Aug. 9, 1902) gives a classification of the feeble-minded and discusses their training, strongly advocating their retirement to asylums and schools suitable to their needs, and deprecating their return to the world, both in the interest of the imbecile himself and of society at large. Not only from the tragedies and monstrosities of degeneration does society need protection, but from its certain and appalling increase. Much has been done to redeem and raise to higher planes by training, but much remains to be done: the establishment of separate asylums for the helpless idiots, idio-imbeciles, and epileptics now burdening the training schools; legislative enactments providing for the separation of abnormal from normal children, and requiring their assignment to schools for special training; the permanent sequestration, under conditions dictated by science, forbidding increase of those judged unfit for the duties of parenthood and citizenship; the opening of reservations and colonies to which may be transferred those trained in the various institutions, thus relieving overcrowded conditions, while giving a stimulus to training, and also provid-

ing permanent homes where trained imbeciles may pursue their various vocations under new and more satisfactory conditions.

The Operative Treatment of Tubercular Arthritis.—Wisner R. Townsend (*Inter. Med. Mag.*, July, 1902) says that the most frequent indication for the performance of an operation in tubercular arthritis is the appearance of an abscess. The next is deformity. The least frequent indication is the removal of a tubercular focus, with the idea of curing the disease and restoring the patient to health, even though no complications exist and he may be doing well. X-ray photography and better diagnosis will perhaps change all this. When septic complications supervene, the tendency of the day is to operate sooner than was formerly done. In the articulations of the smaller joints, the fingers and toes, arthrotomy or arthrectomy will usually enable one to remove all the diseased tissues, although when the disease is very extensive an excision or amputation may be required. In the ankle joint arthrotomy or arthrectomy usually suffices. Excision is not desirable here, as it is so difficult to secure bony ankylosis and a flail joint renders locomotion most difficult. If it is performed, an arthrodesis of the mid-tarsal or Chopart's joint is desirable, as it holds the foot much firmer. At the knee arthrotomy and arthrectomy are most satisfactory in early life, and excision should not be practised, except in very rare instances, before the age of eighteen, as the resulting shortening and tendency to deformity render the results most unsatisfactory. If excision is done apparatus must be worn for many months after the operation. At the hip arthrotomy or arthrectomy is not very satisfactory, and excision and amputation have to be considered. In suppurative hip-joint disease amputation is not done as frequently as it should be. In the wrist arthrotomy or arthrectomy may be of value; excision and amputation are rarely indicated.

Paraplegia from Pott's Disease.—Arthur J. Gillette (*Inter. Med. Mag.*, July, 1902) says that the paralysis is not due to the deformity, to the angular curvature of the spine, or the tortuous canal, but is *due to the inflammation or its products*. The special symptoms of beginning Pott's paralysis are: first, an exaggeration of all the symptoms of tuberculous disease of the vertebræ; there will be more pain, more *acute* pain; patient will not be able to walk easily, will have a dragging or shuffling gait, and there will be an exaggeration of the reflexes; the patella tendon reflex is increased, and ankle clonus is often present unless the disease is in the lumbar region, where paralysis is infrequent; the paralysis is usually bilateral, but it may be unilateral, and some unusual cases have been reported where the paralysis was above the point of deformity. The extent of the paralysis may be so slight as to manifest itself only in weakness, or there may be a complete paralysis of motion, the latter the usual extent, or there may be a complete paralysis of motion and sensation and the bladder and rectum may be involved, depending, of

course, entirely upon the location of the disease and the extent of the inflammation. It lasts all the way from six weeks to about a year, rarely three years. It seldom recurs; incomplete recovery is uncommon; other complications, such as tuberculosis elsewhere and abscesses, must be taken into consideration in the prognosis. The principal part of the treatment is *rest*—complete and thorough immobilization. This can only be obtained by recumbency with extension and counter-extension, the patient being placed on a hard surface—not in an ordinary bed with yielding mattress and springs, allowing the patient to move from side to side, every twist and turn causing motion between the vertebrae and adding still further damage to an already diseased spine or cord. Many times these patients are rolled back and forth in bed for examination, the reflexes sometimes being so exaggerated as to jerk the entire body, the patient crying out with pain. When placed on a water bed, with every movement of hands, shoulders, or head the entire body is set in motion, causing pain and adding still further to the inflammation; yet we frequently read of the water bed being employed to prevent bed sores, which is, of course, neuropathic, and if there is anything in keeping the spine quiet to improve the conditions causing the paralysis, certainly the water bed is the very thing which ought not to be used. We know from experience that sores do occur when patients are on water beds. If the patients were placed upon a frame like the Bradford bed frame, a steel frame with canvas stretched across it, simple in construction, it could be carried from place to place, evacuation of the bowels could take place, and the patient could be cleansed with little, if any, motion of the spine. When in the early stages of paralysis the reflex spasms are marked, extension and counter-extension should be used, as it assists in immobilizing as well as preventing spasms, and when the disease is at or above the dorsal region the chin piece, with weight and pulley, should be added to the Bradford frame.

A New Sign of Pleuritic Effusion in Children.—Samuel W. Kelley (*Arch. of Ped.*, Oct., 1902) says that the semeion to which he wishes to call attention is simply this: In the course of symptoms which indicate the early stage of pleurisy, among which is the attitude of lying upon one side or bending toward or pressing upon one side, this position changes and the patient instinctively turns and prefers to lie upon the back or to be propped up high in bed, and avoids bending toward that side or pressing upon it. This is a sign of effusion—probably of an effusion of considerable bulk, and poured out with a degree of rapidity. The author has observed this again and again, and while he is not prepared to say that it is constant in its appearance and infallible in its significance, he believes it to be as reliable as, for instance, the symptom of lying upon the affected side in the beginning of pleurisy, or perhaps as the flexing of the thighs in peritonitis, and other signs that are generally regarded

as significant. The most rational explanation which he can offer for the sign, he says, is that lying on the back or sitting up causes the least pressure of the effusion against the compressed lung and the heart and great vessels, and allows the greatest freedom of breathing and circulation. If the child lies upon the affected side the weight of the body upon the chest wall presses the fluid still more upon the compressed lung, and increases the dyspnea, and perhaps interferes more with the action of the heart, and instinctively the child changes to an easier position. To lie upon the sound side would interfere with the respiratory movements of the sound lung and increase the dyspnea. This leads the patient to involuntarily avoid that position. But to lie upon the back takes the pressure off the more yielding ribs and allows the most freedom of respiratory movements and least displacement of, or pressure upon, the blood organs. So this attitude is often chosen, though a child will sometimes prefer to be propped up or to sit up.

The Post-Operative Treatment of Adenoids.—Macleod Yearsley (*Med. Times and Hosp. Gaz.*, Sept. 20, 1902), discussing the hygienic part of the after-treatment, says that good air, good food, and good surroundings may be taken for granted. In addition, children should be taught simple breathing exercises, which help them to improve their now unobstructed airways and to develop their chests and air passages. They should be begun about a fortnight after the operation, when the post-nasal space is completely healed. The child should be instructed to stand erect, to close the mouth tight, bring the hands together with the arms extended, and then slowly carry the arms back until they are a little behind the line of the shoulders, at the same time taking a deep inspiration *through the nose*. After a slight pause has been made, the hands are brought slowly together again, while expiration is similarly performed through the nose. This simple exercise should be performed every morning for about five minutes, at the normal rate of about fourteen to eighteen respirations per minute. Older children can use light (one pound to one pound and a half) dumbbells as an accessory to the exercise, which should always be done in an airy room, or, in the summer, in the open air.

Pseudo-Epilepsies.—William Browning (*Jour. of Nervous and Mental Disease*, Oct., 1902) thus summarizes his study on the subject: (1) In the young there occurs a class of cases characterized by recurrent attacks of heterogeneous type, and that may conveniently be called "pseudo-epilepsy." (2) This form of trouble is curable. (3) Such cases, so far as here studied, are due to, or associated with, disturbances in the general tissue metabolism of the body. (4) Some of these are in whole or in part of rachitic origin. (5) Troubles of this kind when due to rachitis are amenable to thyroid treatment. (6) True epilepsy is not remedied by thyroid, even in a person who was once rachitic. (7) It is evident that in many cases there is a closer

relationship between rachitis and athyreosis than has heretofore been recognized. There must be a relative inadequacy of the thyroid function in these cases associated with rickets. Either, as one of my cases indicates, there is a serious impairment of the activity of the gland, or thyroid feeding serves to burn up harmful material at large in the system.

Respiratory Exercises in the Naso-Pharyngeal Lesions in Childhood.—W. Arbuthnot Lane (*Brit. Med. Jour.*, Sept. 6, 1902) says that with the absence of the pressure which is exercised on the sides of the nasal cavities and of the upper part of the pharynx, the following changes occur: Narrowing of the nasal arch, increase in the height of the palate along the middle line, a diminution in the breadth and height of the nasal cavities, lateral compression of the anterior nares. The mouth is kept habitually open, the temporary teeth decay rapidly, and organisms and their products pass into the stomach and produce an unhealthy condition of the gastro-intestinal mucous membrane. There is an inflammatory condition of the lymphatic tissue of the upper part of the pharynx, comprising the pharyngeal tonsil. The perfection of the auditory apparatus may be impaired. Associated with the lateral compression of the alveolar arch there is often a diminution in the length of the alveolar margin. The teeth, as a result, come in irregularly and are unable to function properly. "Open bite" is often associated with this condition. As the children find difficulty in chewing their food, the food is taken in a soft form or bolted. Consequently the muscles which move the tongue and lower jaw are but little used, and the tongue does not develop, but remains small. Enough has been said to show that all these troubles may be avoided altogether, in the majority of cases, if proper measures are adopted from the first, or if they have developed they may be removed or very greatly diminished by proper attention to the aëration of the lungs, the ventilation of the naso-pharynx, and to the proper performance of the functions of the body.

The Widal Reaction in Infancy.—Frank Spooner Churchill (*Chicago Med. Recorder*, Oct. 15, 1902) states that the Widal reaction occurs in infants and children under the same conditions as in adults. It is perhaps apt to be weaker in early life. The evidence available is overwhelmingly in favor of the theory that a "positive" reaction means typhoid, regardless of symptoms and physical signs. As these symptoms and signs are often irregular or absent in early life, the reaction is especially valuable at this time, and in two ways: by detecting mild or obscure cases, and by ruling out certain intestinal cases which might be mistaken for typhoid. About 10 per cent of a limited series of intestinal infections in Chicago during the summer of 1902 were typhoids; of 127 children, throughout the city, suspiciously sick, about 20 per cent were typhoids. The serum test should be more widely used both to insure proper treatment of the individual patient and to prevent the spread of disease.

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ORIGINAL COMMUNICATIONS.

TRANSABDOMINAL, INTRA- AND EXTRAPERITONEAL
URETERO-VESICAL GRAFTING.¹

BY

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(With two illustrations.)

HISTORY accords to Gustave Simon, with seeming justice, the credit of having been the first to successfully implant, by surgical means, an injured ureter into the bladder.¹ His operations were performed through the bladder route, and success was attained in the year 1856, only after several failures. From that date to the year 1895 there have been recorded 68 cases of ureteral fistulæ operated on by the bladder and vaginal routes; "22 of these failed completely, 13 nephrectomies were eventually performed, 7 relieved only by colpocleisis."² Although Poggi³ experimented as early as 1887, with the idea of grafting the ureter by the abdominal route, at an abnormal position in the bladder,

¹Read before the New York Obstetrical Society, May, 1902.

and Paoli and Busachi⁴ made several successful vesical graftings in the dog by the same route in 1888, yet it was not until 1892 that the principles established by these experiments were applied to surgery on man; and to Navaro⁵ is given the credit of having first successfully performed uretero-vesical anastomosing transabdominally.

With this brief review of the history of uretero-vesical grafting, I invite your attention to the report of a case of uretero-uterine fistula operated on successfully by me at the Woman's Hospital in the State of New York, December 13, 1901, and to some remarks on the advantages of the transabdominal methods.

Mrs. S., December 1, 1901, applied to the Woman's Hospital with the following history: Age, 26; occupation, housewife; married; para, 3; miscarriage, 1; height, 5 feet; weight, 195 pounds; waist, 36 inches. First labor uneventful, excepting for moderate laceration of cervix and perineum. Second labor, March 1, 1900, was long and exhausting, occiput posterior. Child extracted with forceps, dead. The history after confinement, as given by her physician, Dr. K. C. Barton, is as follows: "Her convalescence was afebrile and apparently normal. About two weeks after confinement she had a chill, with marked rise of temperature, pain to the left of uterus, headache and backache. Examination showed evidence of cellulitis at the left of uterus." He further states that there was no abscess formation, but "a slough separated, involving left side of cervix and vaginal vault, after which urine began to flow, and the temperature soon dropped to normal. Since then she has had incontinence of urine and frequent attacks of renal colic." Pregnancy occurred twice during this time; the first fetus was carried three months, the second seven; the latter lived ten days after birth, dying in convulsions. Two or more operations were performed by vaginal route, unsuccessfully.

Dr. Rawls, one of the house surgeons of the Woman's Hospital, who examined patient for admission, was unable to discover the opening through which the urine flowed. He endeavored to determine its exact location by injecting sterilized milk into the bladder through the urethra. The bladder filled, but did not leak, and in this way the condition of ureteral fistula was determined. Urine could be seen flowing from the uterine canal, but efforts to determine per vaginam the ureter involved were unsuccessful. It became necessary for me, in order to determine this point, to resort to the use of the cystoscope. The patient

was anesthetized, bladder filled with air, illuminated with electric light, and explored, and urine was seen flowing from the right ureteral orifice. I then passed a small bougie into the left ureteral orifice, and found that it met with an obstruction at a point in the lower posterior bladder wall, a little to the left of the junction of the cervix and vagina; the ureter involved was then positively determined.

Through the kindness of my chief, Dr. H. D. Nichol, Surgeon to the Woman's Hospital, the case was assigned to me for operation. With the assistance of Drs. Cole, Paine, Forsythe, and Douce, the house staff, and in the presence of Drs. Cleveland, Chambers, Broun, McGinnis, and others, I made a free median abdominal incision extending from the pubis to within a short distance of the umbilicus. This length of incision was necessitated because of the obesity of the patient. With the patient in Trendelenburg's position, the omentum was brought over intestines and covered with gauze pads moistened with normal salt solution. Search was then made for the ureter by an incision on the anterior surface of the left broad ligament, extending upward and outward from a point near the junction of the bladder and uterus to within a short distance of the round ligament. A blunt dissection was then made between the anterior and posterior surfaces of the broad ligament in the direction of the base of the bladder and junction of the vagina and cervix. The ureter was found to be situated somewhat posterior to its normal position, considerably dilated, and terminating in the uterus about the internal os. In severing the ureter from its false implantation in the uterus, it was first necessary to push aside the uterine artery, immediately under which the ureter was situated. The ureter was then easily freed from its bed in the broad ligament and brought up out of the abdominal opening, gauze pads being first placed carefully about it to protect the abdominal cavity from the urine, which was constantly expelled. The end was then slightly bevelled and made ready for its new implantation. As the ureter was severed close to the uterus, and the opening into the uterus was extremely small, it was thought unnecessary to tie the distal end.

A long, curved dressing forceps was then passed through the urethra into the bladder until its points came in contact with the posterior vesical wall, to the left of median line, and just below the junction of the anterior surface of the broad ligament and bladder. The blades were slightly opened and a vertical

incision about three-eighths of an inch was made between them. The points of the forceps were then passed through the opening; the free end of the ureter was grasped and pulled through into the bladder. The grasp of the forceps was maintained until permanent sutures were passed anchoring the ureter to bladder wall. The suture material was intestinal silk. The first two sutures were passed through bladder wall down to mucosa, then into the wall of the ureter but not completely penetrating it. The other sutures, five or six in number, were passed entirely

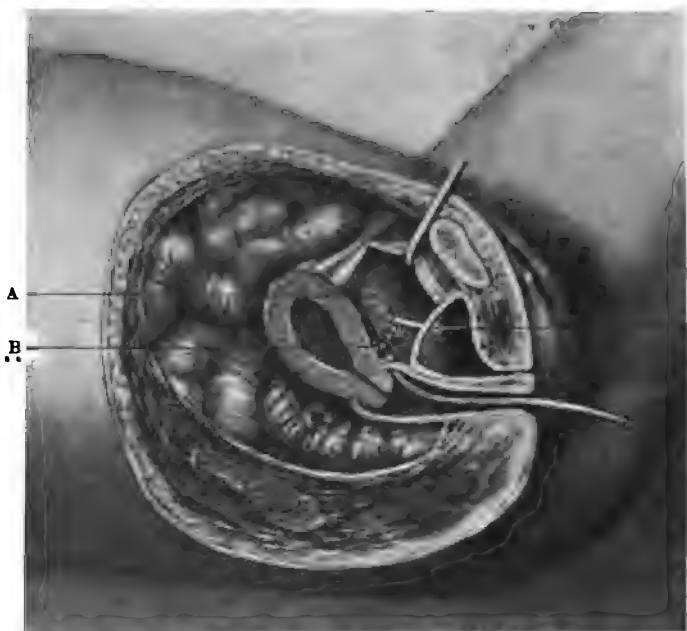


FIG. 1.—The author's direct intra- and extraperitoneal method of treating diseases of the pelvic portion of the ureter. A, uterine artery; B, old track and orifice of ureter; C, orifice of implanted ureter.

through bladder wall and partly through ureteral wall. The great thickness of abdominal wall, and the consequent depth of the field of operation, made this step extremely difficult. At the lowest point in the space between the folds of the broad ligament an opening was then made into the vagina, the exact direction and position of this opening being determined by an assistant's finger in the vaginal vault. Through this opening a rubber tube, one-quarter inch in diameter and four inches long, was passed into the vagina, one end being anchored with No. 2 catgut to the

bottom of the broad-ligament space; complete drainage was thus insured. The incision in the anterior surface of the broad ligament was now united with a continuous catgut suture, and the abdomen closed with silkworm gut. A self-retaining block-tin catheter was inserted into the bladder, and removed twice a day to be cleansed from phosphatic deposits. At the end of the fourth day this catheter was entirely withdrawn and the bladder catheterized every four hours until the sixth day, when patient was able to void urine without difficulty. At the end of fifty hours gentle traction was made on the rubber tube, and, as the catgut which anchored it had by that time softened, no appreciable resistance was offered to its removal. The convalescence of the patient was uneventful, save for slight irritation of the

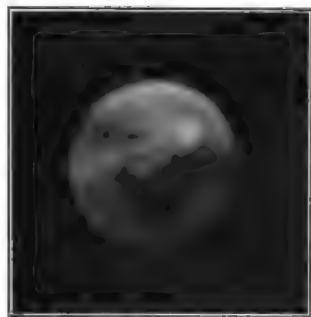


FIG. 2.—A photograph of the orifice of the implanted ureter taken five weeks after operation, by passing the photographic apparatus into the distended bladder through the urethra.

bladder due to excessive phosphatic deposit. This condition was eventually relieved by large doses of benzoic acid. As pus was also found in the urine, the bladder was frequently irrigated for a time. Four weeks after operation a considerable deposit of earthy phosphates was removed through Kelly's cystoscope from around the normal ureter. Five weeks after the operation the bladder was distended with boracic acid solution and a photograph taken of the implanted ureter. This photograph (Fig. 2) may be somewhat unintelligible to those who have never seen the orifice of a newly implanted ureter. The deep shadow is the opening, and the white portion the bevelled end of the ureter which projects into the bladder, forming a mound on the mucosa. Through the cystoscope this white portion appeared red.

Before discussing the merits of the procedure adopted in the

case reported, permit me to briefly review some of the representative transabdominal methods. Witzel⁶ opened the abdomen by median incision, and searched for the ureter at its point of crossing the iliac artery. A small incision through the peritoneum exposed the ureter. Traction was then made upon the ureter, so that its insertion in the broad ligament could be determined: here another incision was made in the peritoneum, the ureter exposed, ligated in two places, and severed between ligatures. The distal end was buried and the proximal end brought out at peritoneal incision over iliac vessel. This free portion of the ureter was now passed, by a pair of forceps, behind the peritoneum and above the linea ilio-pectinea to the region of the bladder, and the incision in the peritoneum closed. The bladder was fastened above the middle of the iliac fossa with strong catgut sutures; the ureter, cut obliquely, was placed for a distance of four centimetres along its upper surface. An opening was made in the bladder wall, and, with interrupted catgut sutures, the mucosæ of the ureter and bladder were united. The muscular and fibrous coats were fixed with separate catgut sutures. On either side of the ureter, and parallel to it, a fold of bladder was made, and the lips of these folds were united to form an oblique canal. A glass tube to provide for leakage communicated with the point of implantation through a separate opening in abdominal wall.

The plan recommended by Kelly⁷ in 1894 was as follows: The abdomen was opened by the median incision, the patient being placed in Trendelenburg's posture. The ureter was found at the pelvic brim, and "traced from the point where it crosses the common iliac artery down to the pelvic floor, exposing the whole length of its pelvic portion by splitting the peritoneum over the upper surface . . . and the ureter lifted from its bed and divided close to the scar." It was then found too short for anastomosis to the bladder without undue traction. To avoid this the bladder was detached from "the horizontal rami pubis on both sides," allowing the ureter and bladder to unite without strain. The bladder was incised just enough to receive snugly the ureter, and at a point nearest the proximal end of the ureter. The under surface of the ureter, at orifice, was slit up four millimetres; a long forceps was passed through the urethra into the bladder and through the opening made in the bladder wall; with this forceps the urethra was grasped, drawn directly across the pelvis into

the bladder, through the incision, and there held by forceps until permanently sutured. Sutures of silk were passed through the muscular tissues of the bladder and the peritoneal and muscular coats of the ureter. A narrow strip of gauze, to provide for leakage, extended from the region of implantation to the lower angle of the abdominal wound, and the abdomen was closed, except at this lower portion. The technique of grafting adopted by Baldy,⁸ in 1895, possesses features worthy of consideration. He utilized Van Hook's suggestion, penetrating the ureter from within outward with two double catgut sutures, and at points one-eighth of an inch from its end. An incision was made in the bladder wall one inch in length, at a point nearest the ureter, and the sutures in ureter were now passed, again, from within outward through the entire thickness of the bladder wall and one-eighth of an inch from the incision, the ureter drawn into the vesical opening, and the sutures tied. The layers of the bladder structure were united separately by continuous catgut sutures. Additional sutures were passed through the outer coat of the ureter and bladder to insure accuracy of closure; a glass tube was inserted for drainage, and the abdomen closed. The method adopted by Boldt,⁹ in 1896, differed considerably in respect to the manner of both finding and implanting the ureter. His first step was to pass a catheter per vaginam into the falsely implanted ureter. The abdomen was then opened by a median incision, and the ureter, with catheter *in situ*, dissected from its bed. The catheter, still in position, was passed through the vesical opening and out through the urethra, projecting ten centimetres. The urine collected in the bladder from the normal ureter was drained by a catheter passed through the urethra alongside the ureteral catheter. The abdominal incision closed without further drainage. The technique of implantation adopted by Calderini, of Bologna,¹⁰ in 1898, differs widely from the foregoing, and I relate, in addition, the history of his case because of its similarity to the one I report. The patient was confined November 25, 1897; labor long and tedious; position L. O. P.; child extracted with forceps and died at birth. On the third day after labor incontinence of urine was noticed, and on the sixth day it was discovered that leakage took place through the cervical canal. Two months later, January 23, 1898, the patient suffered with severe pain through the pelvis, with an accompanying chill. It was considered advisable to open

through the anterior fornix and drain the pelvic cavity with gauze. Pain was confined to the left side, where cervix had been extensively lacerated. The cystoscope was used, but unsuccessfully at first, to determine the ureter injured. As urine was thought to be seen passing from both ureteral orifices, methyl blue was administered by mouth; this was soon seen per vaginam, coming from the cervix uteri, and, by the aid of the cystoscope, it was also seen coming through the right ureter only. March 15, 1898, the abdomen was opened by a crescentic incision above the pubis. The peritoneum was incised to the inner side of the external iliac artery, and the ureter from this point freed from its bed by a blunt dissection with the finger, and followed down some distance between the folds of the broad ligament, where it was severed and brought up out of the wound to be prepared for grafting; this was accomplished with Boari's button; with this exception, the technique followed by Calderini was practically the same as that followed by Navaro. The peritoneum was detached along the bladder, from the pubis to the region of implantation, and a gauze drain introduced through the abdominal incision along this track to provide for leakage. Boari's¹¹ button for implanting the ureter into the bladder or intestines resembles somewhat Murphy's button for intestinal anastomosis; it consists of a small metallic tube with a bulb at one end, in which the ureter is inserted and tied, and of two plates of the same material at the other end. Between these plates there is a spiral spring which constantly acts to push the upper plates along the tube and against the bulb. When the instrument is being used the plates are first compressed, and then passed through the bladder opening, and the opening is closed over them by a purse-string suture. When compression is released from plates the spring forces the upper plate, and with it the bladder wall, against the ureteral wall, which has been previously tied around the bulb of the tube. The two surfaces are thus brought in close contact, but their apposition made still more secure by the placing of several sutures about the perivesical tissue. The button, in Calderini's case, freed itself from the bladder wall at the end of seven weeks; it then occasioned dysuria, and was removed from the bladder through the urethra by means of a string attached to the button and passed through the urethra at time of operation. This second operation necessitated an incision and dilatation of the urethra.

Catarrhal cystitis immediately followed the operation and persisted about two months, during which time it was necessary to constantly irrigate the bladder. An abdominal abscess appeared on the seventh day, out of which urine was discharged; this fistula, however, soon closed, and the patient was cured at the end of two and a half months.

The perfected technique of modern surgery, and the thorough knowledge of, and familiarity with, pelvic anatomy, permit the surgeon of to-day to approach the problem of repair of uretero-uterine and uretero-vaginal fistulæ with a confidence not possessed by the surgeon of former times. Though the choice of routes may depend somewhat upon special conditions, yet I cannot altogether agree with the opinion as expressed by Pozzi¹² and MacMonagle¹³ that the repair should always be first attempted through the vagina. In view of the great difficulty of dissecting out the ureter and implanting it into the bladder by this route; in view of the close proximity of the uterine artery, and the annoyance and difficulty it would occasion if severed; in view of the numerous failures by this route and of the brilliant results of the transabdominal method from its very introduction, we are, I believe, justified in selecting this method of procedure in the vast majority of cases.

The transabdominal route permits the surgeon, under all circumstances, to discover the extent of ureteral injury, enables him to prepare the ureter to the best advantage for grafting, and allows a selection of the most desirable point on the bladder wall for implantation; in fact, it gives him the opportunity to execute his work with a clearness and precision afforded by no other route.

In dealing with the injuries of the ureter following labor, we have an organ to repair within the folds of the broad ligament. If the injured end of the ureter is lodged in the vagina, then the general direction of the broad-ligament portion of the ureter is slightly upward and posterior. In either case it is diverted but slightly from its normal direction, and to find it through the abdominal route it is only necessary to separate anteriorly the broad-ligament surfaces, dissecting toward the junction of the bladder, vagina, and cervix.

When the ureter is injured during a vaginal hysterectomy, the portion injured will usually also be that situated within the folds of the broad ligament near the bladder wall. If much of

this ligament has been left, the finding of the injured ureter during a secondary operation for repair will be facilitated by using the ligament as a landmark and working likewise between its surfaces anteriorly and downward. When the ureter is severed during an abdominal section in removing large pelvic tumors, uterine or adnexal, with a resulting vaginal fistula, the loss of ureteral structure may be considerable and the portion of the ureter remaining to be anastomosed with the bladder will usually be difficult to locate because of the destruction of certain landmarks. At the secondary operation for repair of ureter, under the circumstances, it becomes necessary to trace the organ from the ilio-pectineal line downward, unless a catheter can be passed into it per vaginam, as advised by Boldt.

With the exception of Boldt, all the operators have heretofore adopted practically the same step in finding the ureter, viz., incising the peritoneum over the ureter and tracing the ureter down to the region of injury. The method I have adopted is, of course, applicable only in those cases where the broad ligament is intact, or where there is sufficient of it remaining to¹⁸ serve as a bed for the ureter and as a guide in our work.

This procedure, so far as I have been able to investigate, has not been previously attempted or suggested; it differs essentially from methods heretofore adopted, in that it creates an extra-peritoneal space in which the ureter, for a considerable distance, can be easily and thoroughly examined, freed from its bed, severed from its false implantation, prepared for grafting, shifted to the bladder site without materially changing the relative position, and anastomosed with the bladder at a selected point entirely extraperitoneal. In addition to these advantages it affords the opportunity of establishing thorough provision for leakage without in any way contaminating the peritoneum, as the broad-ligament space in which the ureter is adjusted becomes, by the closing of the incision, completely shut off from the general peritoneal cavity. The entire operative procedure on the ureter thereby becomes extraperitoneal.

When the ureter has been so injured as to be considerably shortened, it may become necessary, in grafting it to the bladder to carry it across the pelvis. However, we should not abandon our effort to embed it under the peritoneum until it is found impossible to make the bladder and ureter meet without undue tension, by resorting to Kelly's¹⁴ ingenious scheme of detach-

ing the bladder from the horizontal rami of the pubes on both sides. When we have the choice of embedding the ureter under the peritoneum or carrying it directly to the bladder across the pelvis, we should always select the former method; for when the latter procedure is adopted the ureter becomes "stretched like a lax cord, from posterior part of pelvis to bladder," and, thus deprived of its normal support, it is subject to constant strain and tension from intra-abdominal pressure; the raw surface of its wall, occasioned by dislodging it from its bed, also favors intestinal adhesions.

The vesical portion of the ureter traverses the base of the bladder obliquely downward and inward for a distance of three-quarters of an inch. "At the lower extremity of the ureter the circular fibres blend with the other muscular fibres of the bladder wall, and the longitudinal fibres arrange themselves in two bands, an upper and a lower; the upper turns toward the middle line beneath the mucous membrane, and blends with its fellow of the opposite side . . . ; the lower passes downward and inward toward the orifice of the urethra."¹⁸ This gradual merging of the ureteral wall into the bladder structure was evidently designed by Nature with certain definite objects, among which seem to be the strengthening of attachment, and, in part at least, the prevention of regurgitation.

In implanting the ureter in the bladder wall the question arises: Is it desirable to strive to simulate Nature in making the artificial implantation obliquely, and, if an oblique grafting is not desirable, how can a direct implantation be made to insure the proper functioning of the ureter?

In regard to the desirability of an oblique artificial implantation, it would be found difficult, if not impossible, to embed the ureter in the bladder wall in such a direction for more than the merest fraction of an inch, as the thickness of this wall and the diameter of the ureter bear a close relation to each other. Even though this were possible, we could not adjust the muscular fibres so as to bring about a physiological result.

"The urine is conveyed to the bladder by means of two forces: (1) the force of gravity acting in the erect position; (2) the peristaltic action of the walls of the ureter. Regurgitation of urine from the bladder is prevented, under ordinary circumstances, by the valve-like nature of the vesical opening."¹⁸

As the urine is propelled forward through the ureter, the

pressure from within easily forces aside the valve-like folds of the orifice, and the urine flows unrestrictedly into the bladder; but during the interval of cessation of peristaltic action (the moment when pressure from within ceases) the valves close; at each successive interval, and in direct proportion to the increase of urine in the bladder, the valves meet with increased force, but the peristaltic or propelling power in a healthy ureter is always sufficient to overcome the pressure of even a distended bladder. The intermittent peristaltic wave in the ureter and the opening and closing of the valves establish an automatic action by which the complete emptying of one organ and filling of the other is accomplished. Nature's device here is a safeguard; it allows the ureter an opportunity during intervals to rest and recuperate, and prevents the backward pressure within the bladder from distending the ureter.

To accomplish what Nature does by her ingenious device, we are compelled to select a point on the bladder wall for implantation which will insure the complete emptying of the ureter at all times, and where there will be exerted the least backward pressure from bladder contents. Morris¹⁷ says: "In uretero-vesical implantation, regurgitation of urine . . . is more especially prone to happen when precaution is taken against the occurrence of stenosis by splitting the engrafted end of the ureter." But such will not occur unless the orifice is situated at a low point in the bladder wall. In order, therefore, to avoid this result, and yet retain an open orifice, we must select a point for implantation where pressure backward will not take place until after there has been accumulated a very considerable quantity of urine in the bladder, nor should this point be high enough to interfere with the constant and complete emptying of the ureter. The top of the bladder being the highest point, the ureter implanted here is subject to the least pressure from the bladder contents, but a ureter so implanted would be shifted considerably from its natural course, which would require, at times, a performance of uphill work. The base of the bladder, being the lowest point, is subjected to continuous pressure from within, and is also objectionable. The point which meets more nearly all requirements is situated in the posterior vesical wall just below where the peritoneum passes from bladder to broad ligament.

The technique of implanting ureter into bladder deserves special notice. "Stenosis, or too great contraction of the ureters

orifice, is one of the dangers of all forms of ureteral implantation, whether into the bladder, bowels, vagina, or on the surface of skin. Such stenosis results in hydronephrosis, which has been a very common sequel of all forms of experimental ureteral grafting."¹⁸ In dealing with this problem we have two chief factors to consider: first, the preparation of the end of the ureter before grafting; second, the position and size of the incision in which the end of the ureter is to be implanted. There is a tendency to contraction in all cut surfaces when healing, therefore it becomes necessary, before implanting the ureter, to make the orifice quite open by either bevelling or splitting it. This rule of contraction is applicable also, to some extent at least, to the surface in which the implantation is made; when, therefore, a raw surface of the uterus or bladder surrounds a more or less yielding body like the ureter, the question of the extent of diminution likely to follow in the calibre of the ureter about the point of implantation may, with propriety, arise. If there is an appreciable influence it must vary according to the character of the tissue in which the ureter is embedded. The uterine tissue, because of its firmness of structure and peculiar contractility, has doubtless a more marked influence in this respect than either vaginal or bladder tissue. In the case I report attention was drawn to the marked contraction in the calibre of the embedded portion of the ureter, and the backward pressure which it occasioned was sufficient to enlarge the entire broad-ligament portion of the ureter and give rise to frequent "colics."

Boldt's method of managing the grafted end of the ureter—viz., leaving one end of the catheter in the ureter and passing the other through the bladder and out at the urethra—is designed chiefly for the purpose of draining the ureter directly. Thorough drainage will, under these circumstances, usually follow, but every case so treated is subjected to a considerable risk—i.e., the risk of occlusion of the catheter by deposits taking place about or within the instrument. We are never able to insure against such an occurrence, and therefore the risk of injury to, and even total destruction of, the work is considerable. The case reported is one in point, as the phosphatic deposits were a source of annoyance for five weeks. The self-retaining block-tin catheter, which was removed twice a day, was usually found covered with phosphatic concretions, necessitating the abandonment of this form of catheter.

Boari's button is more objectionable than Boldt's retained catheter, as it does not separate from the seat of implantation for several weeks; the risk of occlusion is therefore greater. During the process of its separation micro-organisms abound in the immediate region, subjecting both the ureter and kidney to infection. After the button has been dislodged and has fallen into the bladder, it makes the patient very uncomfortable, and a second operation becomes necessary for its removal. The only advantage possessed by this instrument is the ease and rapidity with which implantation may be accomplished. In a very weak patient, or when the ureter has to be immediately implanted after a long and exhausting operation, this feature may become a consideration.

The anchoring of ureter to bladder wall has, in the majority of cases, been done entirely with silk or catgut. The results seem to have been equally satisfactory. What deleterious effect, if any, the encapsulated silk sutures have upon the tissues about the graft is an open question. The possibility of these sutures eventually passing into the bladder and becoming the nuclei of stones should be considered. Catgut possesses the advantage of being completely absorbed, yet at the same time, judging from the successful results in both experimental and practical work, it is sufficiently durable to insure union of the apposed surfaces. Unless there be very considerable traction on the implanted ureter, the soluble rather than the permanent suture is, in my judgment, to be preferred. If there exist sufficient traction on the ureter to demand the use of permanent sutures, then both the angle of implantation and the depth of penetration of the wall by sutures deserve special attention; for C. A. Smith¹⁹ has shown by recent experiments that when the ureter is implanted obliquely, and the sutures are passed transversely, entering the lumen, a resisting force results nearly one pound greater than when implantation is direct and where sutures have not penetrated.

Study of the experimental and practical work in this special field, with the experience acquired in this case, has convinced me that certain improvements may be made in the technique of implanting the ureter; and should it ever be my good fortune to again operate on such a case as herein described, I would adopt, in part, the principles of the Van Hook method. A $\frac{1}{2}$ inch incision in the bladder wall is both rational and desirable for such an incision facilitates materially the manipulation and

the exactness of adjustment, while adding nothing to the risk of operation in the hands of one familiar with plastic surgery in the pelvis. From the base or middle of each side of such an incision a small oval section of the bladder wall might be removed so as to prevent the crowding of tissue about the ureter, allowing it to fit uniformly and snugly in its bed. In preparing the end of the ureter for grafting, it would seem advantageous to slit up each side about one-fourth of an inch, rounding these sections to a point, penetrating each from within out by a double catgut suture; each suture to be then passed through the bladder wall again from within out, and on either side of the incision. When tied these sutures will both anchor the ureter and bring together the incised vesical surfaces. Before tying them, however, other catgut sutures should be passed down to the mucosa to close the angles of incision, and apposition made still more¹⁶ secure by passing several sutures through the outer vesical and ureteral tissues.

The transabdominal extraperitoneal method as adopted in the case reported—*i.e.*, the finding of the ureter through an incision in the anterior surface of the broad ligament, and a dissection downward between the broad-ligament folds—is the most direct method of procedure; it admits of extraperitoneal manipulation and extraperitoneal implantation at point of selection on the bladder wall; it necessitates the shifting of the ureter but slightly from its normal direction; and allows thorough provision for leakage through vagina at the base of the extraperitoneal space within the folds of the broad ligament. This direct extraperitoneal procedure, with the method of implantation of the ureter above suggested, affords every advantage to the operator in his work.

49 WEST THIRTY-EIGHTH STREET.

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3. Riforma medica, 1887-1888, vol. viii., p. 39.
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5. Bulletin de la Société médicale de Boulogne, September, 1893.
6. Centralblatt für Gynäkologie, 1896, No. 11, p. 289.
7. KELLY: Operative Gynecology, vol. i., p. 461.
8. AMERICAN JOURNAL OF OBSTETRICS, vol. xxxiii., 1896, p. 362.
9. Ibid., p. 841.

URETERO-VESICAL GRAFTING.

| No. | Operator, and where reported. | No. of cases. | Date. | Condition demanding operation. | Method. | Remarks. | Result. |
|-------|--|---------------|-------|--|--|---|--------------------------|
| 1 | Baumm. Cent. für Gyn., 1892, p. 336, No. 17. | 1 | 1892 | Supernumerary and abnormal ureteral orifice on right side. | Suprapubic cystotomy. Opening through base of bladder in which proximal end of supernumerary ureter was anastomosed. | Peritoneal cavity entered at base of bladder. | Cured. |
| 2 | Albarran. Referred to by Morris, p. 572 "Surgical Diseases of the Kidney and Ureter." | 1 | 1892 | Supernumerary opening into vagina. | Suprapubic cystotomy..... | | Failed. |
| 3 | Navaro Cent. für Chir., vol. xxvii., p. 556. | 1 | 1893 | Uretero-vaginal fistula following vaginal hysterectomy. Repair of ureter two months after. | Median abdominal incision, transperitoneal. Ureter traced from point over iliac vessels. Anastomosed with bladder two fingers' breadth above normal ureteral opening. Sutures included entire thickness of ureteral and vesical walls. | Gauze drain through abdominal wound | Cured. |
| 4 & 5 | Bazy. II Pol. clinico. 1899. "Surgical Diseases of Kidney and Ureter." Morris, vol. II., p. 568. | 2 | 1893 | Uretero-vaginal fistula. | Suprapubic cystotomy (as did Baumm.), extraperitoneal. | Peritoneum not opened. Condemned by Bazy. | Failure. |
| 6 & 7 | Bazy. Encyk. für Geb. und Gyn., p. 382. | 2 | 1893 | " | Median abdominal incision. Catheter first introduced into ureter, then passed through bladder wound with ureter. Bladder opening closed with catgut. | Mikulicz tampon over seat of operation. Catheter through bladder drained ureter. | Cured. |
| 8 | Penrose. Philadelphia Med. News, 1894, p. 470. | 1 | 1893 | Injury to left ureter during abdominal hysterectomy. Immediate repair. | Median abdominal incision, transperitoneal. Ureter excised one inch. Vesical implantation according to Van Hook's method. Field of operation partly covered by peritoneum. | No drainage... | " |
| 9 | Tuffer. Referred to by Morris, vol. II., p. 576. | 1 | 1893 | Uretero-vaginal fistula following vaginal hysterectomy. | Median abdominal incision, transperitoneal. Peritoneum incised over iliac artery. Ureter found and traced to seat of injury; anastomosed to bladder with catgut and silk sutures. | Drained by No. 19 catheter placed in ureter and passed through bladder opening and urethra. | " |
| 10 | Krug. New York Jour. Obst. and Gyn., 1894, p. 496. | 1 | 1894 | Injury to ureter during abdominal hysterectomy. Immediate repair. | Median abdominal incision, transperitoneal. Vesical anastomosis according to Van Hook's method. Incision in bladder near vertex, one and a half inches. | No drainage.. | " |
| 11 | Veit. Zeit. für Geb. und Gyn., vol. xxxi., p. 462. | 1 | 1894 | Injury to ureter during the removal of diseased adnexa. Immediate repair. | Median abdominal incision, transperitoneal. Injured ureter anchored along abdominal wall under peritoneum and grafted to the anterior surface of bladder. Part of ureter crossing pelvis was without peritoneal covering. | " | Recovery "satisfactory." |
| 12 | Howard Kelly. "Operative Gynecology," vol. I., p. 461. | 1 | 1894 | Uretero-vaginal fistula following vaginal hysterectomy. Repair of ureter seven weeks after injury. | Median abdominal incision, transperitoneal. Ureter detached from its peritoneal bed from point over iliac cavity. Found too short to meet bladder wall. Bladder then dissected from horizontal ramus pubis. | Abdominal drainage. | Cured. |

| No. | Operator, and where reported. | No. of cases. | Date. | Condition demanding operation. | Method. | Remarks. | Result. |
|-----|---|---------------|-------|---|---|--|---------|
| 13 | Kraus. Cent. für Chir., 1895, No. 9. | 1 | 1894 | Ureter injured during vaginal hysterectomy. Grafted into vagina. Attempted repair per vaginam. | Median abdominal incision, transperitoneal. Ureter traced from point over iliac artery. Five centimetres lower portion of ureter liberated and anastomosed into bladder. | No drainage... | Cured. |
| 14 | Budinger. Referred to by Morris, "Surgical Diseases of the Kidney and Ureter," vol. II., p. 592 | 1 | 1894 | ? | Lumbo-ilio-inguinal incision. | ? | ? |
| 15 | MacMonagle. Trans. Amer. Gyn. Soc., 1899, vol. xxiv., p. 500. | 1 | 1895 | Uretero-vaginal fistula following vaginal hysterectomy. Attempted repair per vaginam. Successful abdominal repair two years after hysterectomy. | Median abdominal incision, transperitoneal. Ureter found and traced from point over iliac artery. Vesical anastomosis according to Van Hook's method. | Iodoform gauze drain per vaginam. Removed on the sixth day. | Cured. |
| 16 | Pozzi. "Treatise on Gynecology," Pozzi, p. 770. | 1 | 1896 | ? | Median abdominal incision, transperitoneal. Ureter traced from point over iliac vessels. Anastomosed according to Navaro. | Mikulicz tampon drain. | " |
| 17 | Ferguson. Amer. Gyn. and Obst. Jour., vol. xxii., p. 629. | 1 | 1895 | Uretero-abdominal fistula following laparotomy for removal of large adherent ovarian cysts. Repair three months after. | Median abdominal incision. Ureter followed to small cavity at bottom of fistula. Upper portion of bladder incised and stretched over ureter. | ? | " |
| 18 | Lannelongue. Referred to by Morris, "Surgical Diseases of Kidney and Ureter," vol. II., p. 501. | 1 | 1896 | ? | Median abdominal incision, transperitoneal. | Drained by catheter placed in ureter and passed through bladder opening and urethra. | " |
| 19 | Witzel. Cent. für Gyn., 1896, vol. xi., p. 621. | 1 | 1896 | Uretero-vaginal fistula. | Median abdominal incision, transperitoneal. Ureter traced from point over iliac vessels, withdrawn from its bed and reimplanted under peritoneum above linea innominata. Bladder fastened in iliac fossa with catgut. Uretero-vesical grafting with catgut. | Glass drainage tube through separate opening in abdominal wall. | " |
| 20 | Baldy. Amer. Jour. of Obs., 1896, vol. xxxiii. | 1 | 1896 | Ureter injured removing intraligamentous cyst and pyosalpinx. Immediate repair. | Median abdominal incision, transperitoneal. Vesical grafting according to Van Hook Catgut suture. Bladder was anchored about stump of ovarian artery. | Glass drainage tube introduced through abdominal opening. | " |
| 21 | Boldt. Amer. Jour. of Obs., 1896, vol. xxxiii., p. 850. | 1 | 1896 | Uretero-vaginal fistula following vaginal hysterectomy. Repair four months after injury. | Median abdominal incision, transperitoneal. Catheter inserted into ureter per vaginam before operation, which acted as a guide. Bladder opened near normal ureteral opening. Ureter grafted with one end of catheter in ureter. the other end passed through bladder opening and urethra. | Drained by catheter placed in ureter and passed through bladder and urethra. | " |

| No. | Operator, and where reported. | No of cases. | Date. | Condition demanding operation. | Method. | Remarks. | Result. |
|-----|---|--------------|-------|---|--|--|--------------------|
| 22 | Dr. Wm. M. Polk. Operation previous to 1896. Date not stated. Trans. N. Y. Obst. Soc., 1897-8, p. 66. | | | Ureter severed during supra-vaginal hysterectomy. Immediate repair. | Median abdominal incision, transperitoneal. | Drained at lumbar region. | Discharged. |
| 23 | Dr. Wm. M. Polk. Trans. N. Y. Obst. Soc., 1895-6, p. 153. | | 1896 | Ureter involved in carcinoma of the lower segment of uterus. Immediate repair. | Median abdominal incision, transperitoneal. Ureter dissected out with the uterus. Right side passed through carcinomatous nodule and sheath involved one inch. Renal end of resected ureter implanted in bladder one inch above normal site. | | Cure. |
| 24 | Routier. Bull. et Mém. de la Soc. de Chir., t. xxi., p. 811. | 1 | 1896 | Uretero-vaginal fistula following labor. | Median abdominal incision, transperitoneal. Bazy's method adopted. | Catheter drained. | " |
| 25 | Howard Kelly. Amer. Gyn. and Obst. Jour., 1898, vol. xii., p. 734. | 1 | 1896 | Uretero-vaginal fistula following panhysterectomy for carcinoma uteri. Three months later left ureter was implanted in bladder. | Median abdominal incision, transperitoneal. | Self-retaining catheter was not placed in bladder. Urine accumulated and was forced out through abdominal wound. | Failed. |
| 26 | Bayer. Encyk. für Geb. und Gyn., p. 486. | 1 | 1897 | Left ureteral opening abnormal. | ? | | Cure. |
| 27 | Boldt. From notes furnished by Dr. Boldt, unpublished. | 8 | 1897 | Uretero-vaginal fistula following vaginal hysterectomy. Ureter repaired one year after. | Median abdominal incision, transperitoneal. Ureter traced from point of iliac vessels. Vesical grafting according to Witzel. Sutures did not hold. | Escape of urine in the peritoneal cavity. No drain employed. | Death from sepsis. |
| 28 | " | 1 | 1897 | Uretero-vaginal fistula following abdominal hysterectomy for removal of septic uterus (puerperal). Repair ten months after. | Median abdominal incision, transperitoneal. Ureter traced from point of iliac vessels; implanted near its normal situation. Ureter completely covered by peritoneum. | No drain employed. | Cure. |
| 29 | Fullerton. "Operative Gynecology," Kelly, vol. i., p. 462. | 1 | 1897 | Double ureter divided while removing pyosalpinx and ovarian abscess. Immediate repair. | Median abdominal incision, transperitoneal. Both proximal orifices sutured in a common opening in bladder. Distal ends ligated. | | " |
| 30 | Israel. Referred to by Morris, "Surgical Diseases of the Kidney and Ureter," vol. ii., p. 570. | 1 | 1898 | Stricture of ureter 3 centimetres above vesical orifice. Cause not known. | Lumbo-ilio-inguinal incision, extraperitoneal. | | " |
| 31 | Calderini. Monat. f. Geb. und Gyn., 1899, vol. ix. | 1 | 1898 | Uretero-uterine fistula following instrumental delivery. Left ureter. | Crescent-shaped incision over pubis, transperitoneal. Ureter found at pelvic brim over iliac vessels, traced to false implantation; re-embedded according to Navarro. Vesical grafting with Boari's button. | Gauze drainage through abdominal wound. Fistulous track resulting for a short while. | " |

| No. | Operator, and where reported. | No of cases. | Date. | Condition demanding operation. | Method. | Remarks. | Result. |
|-----|---|--------------|-------|--|--|--|--------------------------------|
| 32 | Amour. Referred to by Morris, "Surgical Diseases of the Kidney and Ureter." | 1 | 1898 | Tumor of bladder. Growth at or near ureteral orifice. | Median abdominal incision; suprapubic cystotomy, extraperitoneal. | | ? |
| 33 | Aman. Referred to in Encyk. für Geb. und Gyn., p. 383. | 1 | 1898 | | According to Witzel.... | | Cured. |
| 34 | Singer. Referred to in Encyk. für Geb. und Gyn., p. 383. | 1 | 1898 | | " | | " |
| 35 | Singer. Referred to in Encyk. für Geb. und Gyn., p. 383. | 1 | 1898 | Salpingitis and ovarian cyst. | Median abdominal incision, transperitoneal. | Drained through abdominal wound. | " |
| 36 | Howard Kelly. Am. Gyn. and Obst. Jour., 1898, vol. xli. | 1 | 1898 | Uretero-vaginal fistula following hysterectomy. Right ureter implanted in bladder. | Abdomen incised just inside of right anterior superior spine of ilium, extending to spine of pubes. Extraperitoneal method suggested by Fritsch was adopted. Field of operation contaminated by discharge from ureter. Ureter split on dorsum and anastomosed into bladder wall. | Drained per vag. nam. | Died from sepsis on sixth day. |
| 37 | Chalot. II Policlinico, 1899, p. 257. | 1 | 1899 | Injury to ureter during an abdominal hysterectomy for cancer. Immediate repair. | Median abdominal incision Ureter re-embedded according to Navaro. Boari's button used in grafting bladder. | Gauze and tube drainage through abdominal wound. | Cured. |
| 38 | Bertazzoli II Policlinico, 1898. | 1 | 1899 | Uretero cervico-vaginal fistula following difficult labor. | Median abdominal incision transperitoneal. Boari's button used for grafting. | No drain... | " |
| 39 | Pesteleza. II Policlinico, 1899. | 1 | 1899 | Uretero-vaginal fistula following vaginal hysterectomy. | Median abdominal incision, transperitoneal. | Gauze drain... | " |
| 40 | Chiaventone. Referred to by Morris "Surgical Diseases of the Kidney and Ureter," vol. II, p. 580. | 1 | 1899 | Ureteral fistula. | Vesical grafting with Boari's button. | | " |
| 41 | Mackenrodt. Encyk. für Geb. und Gyn., p. 381. | 1 | 1899 | ? | Opened the abdomen at outer edge of rectus muscle. Followed oblique and transversalis fascia. | | " |
| 42 | Fritsch. Encyk. für Geb. und Gyn., pp 381-383. | 1 | 1900 | ? | Opened at flank. Followed ureter from point near common iliac vessels. Nephrectomy had to be at once performed because of loss of blood. | | Failed. |
| 43 | " | 1 | 1900 | ? | Median incision, transperitoneal, according to Witzel | | Cured. |
| 44 | Podres. Referred to in Encyk. für Geb. und Gyn. | 1 | 1900 | ? | Suprapubic..... | | ? |
| 45 | Pernice and Martin Referred to in Encyk. für Geb. und Gyn., p. 382. | 1 | 1900 | ? | According to Mackenrodt... | | ? |

| No. | Operator, and where reported. | No. of cases | Date. | Condition manding operation. | Method. | Remarks. | Result. |
|---------------|---|--------------|-------|---|---|--|--------------------|
| 46 & 47 | Rouffart. <i>Encyk für Geb. und Gyn.</i> , p. 392. Also Morris, p. 568. | 2 | 1900 | ? | Incision at outer border of rectus muscle. Completed operation by a paraperitoneal route. | | Cured |
| 48 | Howard Kelly Jour. of Amer. Med. Assoc., October 6, 1900. | 1 | 1900 | Right ureter involved in carcinoma of the ovary. Intentionally severed and immediately reimplanted in bladder. | Median abdominal incision, transperitoneal. Silk sutures employed for implantation. | Gauze drain through abdominal wound. No leakage. | Cured |
| 49 | " | 1 | 1900 | Right ureter involved in cancer of cervix uteri; intentionally severed and immediately reimplanted in bladder. | " | " | " |
| 50 | " | 1 | 1900 | Uretero-vaginal fistula. | Median abdominal incision, transperitoneal. Silk and gutgut sutures. | Gauze drain through abdominal wound. Leakage. | Failed |
| 51 | " | 1 | 1900 | Ureter involved in malignant ovarian tumor. Almost the entire pelvic portion removed with growth. Immediate implantation. | Median abdominal incision, transperitoneal. | "Pelvic gauze drain." | Death. Cause known |
| 52 | Lapthorn South. Phil adelphia Med. Jour., October 19, 1901. | 1 | 1901 | Uretero-vaginal fistula following confinement | Median abdominal incision, transperitoneal. Ureter found over common iliac vessels, traced to abnormal implantation. Van Hook's implantation. | Gauze drain through abdominal wound. | Cured |
| 53 | Douglas Bissell. | 1 | 1901 | Uretero-uterine fistula following confinement | Median abdominal incision, transperitoneal. Anterior surface of left broad ligament incised. Ureter found at the base of space made between the anterior and posterior surfaces of broad ligament. Anastomosed to the upper and posterior surface of bladder with silk sutures. | Rubber tube drain per vagina. No leakage. | " |

10. Monatschrift für Geburtshilfe und Gynäkologie, 1899, vol. ix., p. 174.

11. Boxy: Annales des malades des organes genito-urinaires, 1891.

12. Pozzi: Treatise on Gynecology, p. 779.

13. MacMonagle: Transactions of the American Gynecological Society, 1899, p. 519.

14. Kelly: Operative Gynecology, p. 462.

15. Rogers: Surgical Diseases of Kidney and Ureter, vol. ii., p. 279.

16. *Ibid.*, p. 284.

17. *Ibid.*, p. 285.

18. *Ibid.*, p. 287.

19. SMITH: AMERICAN JOURNAL OF OBSTETRICS, September, 1901, p. 312.

THESE CASES WERE REPORTED AFTER THE READING OF THIS PAPER.

| No. | Operator. and where reported. | No. of cases. | Date. | Condition demanding operation. | Method. | Remarks. | Result. |
|-----|---|---------------|-------|--|--|--------------------------------------|--|
| 54 | Werder. Jour. Amer. Med. Assoc., August 18, 1903 | 1 | 1901 | Right ureter injured while removing intraligamentous ovarian tumor. Immediate implantation. | Median abdominal incision, transperitoneal. Catgut sutures used for anastomosing ureter with bladder. | Gause drain. | Cured. |
| 55 | " | 1 | 1901 | Division of right ureter during panhysterectomy (abdominal), three inches from bladder wall. Immediate implantation. | Median abdominal incision, transperitoneal. Ureter was implanted in the fundus of bladder. Catgut and silk used. Witzel's method employed to anchor bladder. | Drain not stated. | Vesico-vaginal fistula of urethra which eventually closed. |
| 56 | " | 1 | 1901 | Injury to the right ureter during suprapubic hysterectomy, but not discovered and operated on until fifteen hours after first operation. | Median abdominal incision, transperitoneal. Catgut sutures for anastomosis to bladder. Witzel's method employed. | Gause drain per vaginam. | Vesico-vaginal fistula resulted. Eventually closed by plastic work on vagina and bladder wall. |
| 57 | Howard Kelly. Jour. Amer. Med. Assoc., August 16, 1903. | 1 | 1903 | Stricture of right ureter due to tubercular ulcer. | Median abdominal incision, transperitoneal. | Gause drain through abdominal wound. | Recovered. Tuberculosis developed later in both ureter and kidney. |

INTRA-ABDOMINAL BUT RETROPERITONEAL SHORTENING AND ANTERIOR FIXATION OF THE ROUND LIGAMENTS FOR POSTERIOR UTERINE DISPLACEMENTS.

BEING A PRELIMINARY REPORT CONCERNING THE TECHNIQUE, WITH
REPORT OF CASES.¹

BY

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(With six illustrations.)

WE are all agreed that many displacements of the uterus are transitory; that many cause no symptoms and require no treatment; that many yield to local treatment and pessaries; and

¹Read at the meeting of the Southern Surgical and Gynecological Association, at Cincinnati, November 11, 12, 13, 1902.

that in many others, both simple and complicated, the foregoing measures utterly fail to give relief. Of course you are all familiar with the evolution of this subject. The speedy relief given these sufferers by simple operative measures led to the very general adoption of that mode of treatment. It soon became apparent that in fashioning a technique the operator should contemplate the fulfilment of the highest purpose of woman—maternity. The ingenuity of surgeons quickly met that demand, and ventrofixation gave way (except in a limited class of cases) to the methods of suspending the uterus from the anterior abdominal wall as described by Kelly, Fowler, Martin, and others; to the various round-ligament suspensions of Olshausen, Ferguson, Beck, Gilliam, Martin, and others; to the inguinal shortening of the round ligaments by the procedures of Alexander, Edebohl, Martin, Goldspohn, and others; to the intra-abdominal shortening of the round ligaments according to the methods of Polk, Wylie, Dudley, Mann, Morris, Bissell, Baldy, and others; and to the several ways of shortening the round ligaments through the vagina as advocated by Vineberg, Ries, and others. The advocates of many of the methods of shortening the round ligaments have insisted that sufficient regard has not been paid structures, other than the genital apparatus, normally found in the abdominal and pelvic cavities. To be highly successful any operative procedure designed to relieve displacements should at least take cognizance of the presence of the intestines and of the habits and accidents common to them. It has repeatedly been claimed, and with reason, that artificial bands stretched across the abdominal cavity invite strangulation of those viscera. This applies to ventrosuspension of the uterus, after which we get a suspensory ligament, and doubly so to the attachment of the round ligaments to the anterior abdominal wall according to the methods of Ferguson (1898), Beck, Gilliam, Martin, and others; for here we have two bands instead of one. This type of operation possesses a very positive advantage over other methods of shortening the round ligaments, viz., in changing their direction, thus increasing their retaining power. At first these objections were purely theoretical; but just as one case after another of dystocia following firm ventrofixation of the uterus was reported until the epoch-making papers of Miländer and Noble defined the limits of that operation, so have cases of intestinal obstruction due to the suspensory ligament been creeping into the literature. True, but few accidents

of this kind have been reported. If they were far more numerous, however, they would not counteract the sum total of good these operations have done by changing invalidism into countless years of happy and useful lives. When Rufus B. Hall can relate three such cases from his own rich experience, and Jacobs and others can report like cases, we are constrained to believe that the procedures which have been most widely applicable and most efficient with regard to the genital apparatus are seriously at fault by virtue of their disregard for the other abdominal viscera. In 1896 Dr. Noble was able to collect only eighteen cases of dystocia due to firm fixation of the uterus. To-day he could find record of many times that number. When a woman reaches the menopause that danger ceases; but when artificial suspensory bands stretch across the abdominal cavity, death alone frees her from the possibility of intestinal obstruction. Already ten cases of this kind have been reported. What may we reasonably expect in the future, when we recall that many afflicted with hernia do not become victims of strangulation till long after middle life?

In common with most of you I have for years wished for a procedure which would be as widely and easily applicable as ventrosuspension, and which would possess its good qualities without its objectionable features.

With the hope of stimulating continued thought along that line, I take the liberty of presenting for your criticism a preliminary report concerning the technique of a procedure which seems to me to meet our requirements—a procedure which I have employed three times within about a month and which I have not seen described. But utility and not originality leads me to burden the literature with one more method.

It consists essentially in changing the course of the round ligaments from a transverse to nearly an antero-posterior direction; in shortening the round ligaments so as to leave the distal end slack, the proximal end being used to control the movements of the uterus; finally, and especially, in effecting these changes beneath or by puckering the parietal peritoneum, thus leaving no bands of adhesion and no pockets which may strangulate an intestine. These principles have commended themselves to me as being mechanically and surgically correct. Varying details of technique will readily suggest themselves to the operator. The method outlined below has been employed with the same ease and speed as an ordinary ventrosuspension.

1. Operations upon the lower genital tract, such as curetting, repair of cervix, perineum, etc., are often required, the suspension being but a counterpart to the correction of the other abnormalities.

2. A median abdominal incision one and one-half to three inches long is made just above the symphysis.

3. Adhesions to the uterus are freed and lesions of the adnexa are given such attention as they require.

4. The wound is held wide open by one retractor, which is drawn straight up, thus making the opening vertical and per-



FIG. 1.—The round ligament is grasped about one inch from the uterus, drawn up into the wound, and a silk ligature is inserted in such a way as to encircle about three-fourths of its thickness and to include about one inch of that structure in its grasp.

mitting the operator to look far into the sides of the pelvic cavity.

5. The round ligament is grasped by a delicate forceps one inch from its uterine attachment and drawn up to the surface of the wound.

6. A silk suture is passed through the ligament at this point, in such a way as to encircle about three-fourths of its circumference and to include about an inch of that structure in its grasp. (See Fig. 1.)

7. The needle is taken off and both ends of the suture are passed through the eye of a carrier.

8. The peritoneum is incised just below and in front of the round ligament. The carrier is then inserted and passed directly forward, immediately beneath the peritoneum of the vesico-uterine pouch, to a point on the anterior abdominal wall just above Poupart's ligament and an inch and a half to the side of the median line, where it again emerges. (See Fig. 2.)

9. Both ends of the suture are grasped and the carrier is withdrawn.



FIG. 2.—The carrier is then inserted and passed directly forward, immediately beneath the peritoneum of the vesico-uterine pouch, to a point on the anterior abdominal wall just above Poupart's ligament and an inch and a half to the side of the median line, where it again emerges.

10. One end of the suture is now threaded on a sharply-curved needle, which is passed into the abdominal wall so as to grasp peritoneum, muscle, and fascia, again emerging into the cavity. (See Fig. 3.)

When the two ends of the suture are now tied, the ligament is drawn into and along the subperitoneal channel made by the carrier. Both round ligaments having been thus secured, the conditions existing are entirely analogous to those of an awning. The uterus represents the frame; the round ligaments and

sutures attached, the cords by which it is raised; that part of the abdominal wall caught in the grasp of the suture represents the pulley over which the awning cord runs; and, finally, the peritoneum of the vesico-uterine pouch represents the covering of the awning. When the cords are tightened the uterus is raised just as an awning is. The peritoneum is thus folded loosely over the round ligaments, and when the sutures are tied the uterus is held in normal *anteversion*, just as truly and securely as the frame of an awning is kept more or less straight up after it has been raised and fastened. (See Fig. 4.)



FIG. 3.—One end of the suture is now threaded on a sharply-curved needle which is passed into the abdominal wall so as to grasp peritoneum, muscle, and fascia, again emerging into the cavity.

Briefly my cases are as follows:

CASE I.—Mrs. F., aged 27, three children, youngest 18 months. For several years has suffered from dragging pain in back, oblique inguinal pains, etc., making her quite unequal to the task of caring for her household. This has been worse since her last confinement, and her discomfort is always intensified at her menstrual periods.

Examination showed laceration of perineum with rectocele and cystocele, lacerated cervix, retroverted uterus, and a cystic right ovary.

October 10, 1902, curetting and repair of the lacerations were

done and the abdomen opened by a median abdominal incision. The cystic ovary was resected and the uterus held forward by the technique above described, except that, instead of burrowing beneath the peritoneum, it was picked up along the same course, much as one picks up the tissues in doing Emmet's perineorrhaphy. Though the peritoneum was thus puckered up, she suffered no inconvenience when the bladder became distended. Examination three and a half weeks after operation showed the uterus in normal anteversion, with free lateral but limited backward motion. She expresses herself as being more comfortable than she has been for years.



FIG. 4.—The peritoneum is thus folded loosely over the round ligaments, and when the sutures are tied the uterus is held in normal anteversion.

CASE II.—The second case is in every way analogous to the foregoing, except that the suffering has been more severe. She too was relieved and the uterus was found to be in its proper position. Operation October 14, 1902.

CASE III.—Miss S., aged 39, for years a sufferer from retroversion. Her physician found that while she wore a pessary she was comfortable, but when it was removed the old trouble returned. He had to give her an anesthetic to replace the pessary each time. It was accordingly deemed advisable to replace the uterus and keep it in place by operative measures. In this case

the technique was as described above. While there was no discomfort from the distension of the bladder in the other two cases, it was thought the puckering of the peritoneum might interfere with its function. In this case the same object was accom-



FIG. 5.—When the direction of the round ligaments is antero-posterior, the stretching required to permit retroversion must be much greater.

plished by tunnelling the peritoneum. This operation was done October 23, 1902. Examination November 11 showed the uterus to be in normal position, with the same mobility as in the other cases.

The facility with which this operation has been done shows that its technical difficulties are few and easily overcome. Further, it possesses several distinct advantages. The change in direction of the ligaments increases their retaining power. Thus, a clothes line sags between the posts; put it in the form of a swing and the weight of a man will be easily sustained. A change in the direction of the round ligaments gives analogous results.

When the direction of the ligaments is antero-posterior, the stretching required to permit retroversion must be much greater than when the ligaments retain their natural course. (See Figs. 5 and 6.)

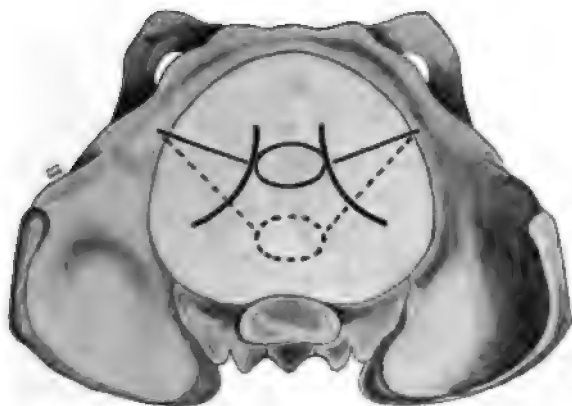


FIG. 6.—When the direction of the ligaments is antero-posterior, the stretching required to permit retroversion must be much greater than when the ligaments retain their natural course.

As the new attachment of the round ligaments is on a lower level than the body of the uterus, these ligaments are not on such a constant strain as in most other procedures.

As the change in direction is effected beneath the peritoneum, there are no pockets in the peritoneal cavity and no bands stretch across it, constantly inviting intestinal obstruction.

True, this operation has not stood the test of time and pregnancy, but other similar methods of shortening the round ligaments have. This procedure, it seems to me, combines their advantages with those of being more widely applicable and free from the dangers of intestinal complication.

INTRAMURAL EXTRAPERITONEAL ANCHORAGE OF THE
ROUND LIGAMENT FOR POSTERIOR DISPLACE-
MENT OF THE UTERUS.¹

BY

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(With four illustrations.)

SINCE doing my first operation for intramural extraperitoneal anchorage of the round ligament (April 6, 1893) my technique has been changed by using the transverse in place of the vertical incision, and thus fortifying the abdominal wound against the danger of hernia. It is this that I wish to show you.

The feature of the operation is the intramural extraperitoneal implantation of the round ligaments.

1. A transverse incision is made through the skin, fascia, fat, and aponeurosis down to the recti muscles. This incision, in the ordinary subject, should be about one and a half inches above the pubis and should extend laterally to the outer border of the recti. The recti are separated vertically in the median line and the peritoneum opened in the same direction. The pelvis is investigated, proper attention given to the local pathologic conditions, and the uterus raised.

2. A pair of light compression forceps with teeth in the end (Senn's) is passed through the abdominal opening and grasps one of the round ligaments about the middle of its intraperitoneal portion. By traction on the forceps the uterus is pulled somewhat to the side of the pelvis which is opposite the ligament, held, the peritoneum is drawn away from the region of the internal abdominal ring, and the ligament made taut so that it may be the more readily recognized in the extraperitoneal manipulations to follow.

3. Now just beyond the outer edge of the rectus, at the end of the transverse incision, the point of a pair of artery forceps is thrust through the posterior sheath of the muscle, but does not

¹Read at the meeting of the Southern Surgical and Gynecological Association, at Cincinnati, November 11, 12, 13, 1902.

enter the abdomen. The forceps is opened and withdrawn, so that an aperture large enough to admit the index finger is left. The finger is introduced through this opening in the preperitoneal fat, and feels the round ligament without difficulty, for it is brought into prominence by tension on the forceps which holds its uterine end (Figs. 1 and 2).

4. The finger, passed through the opening just described, is hooked under the extraperitoneal portion of the ligament from below upward, and draws it up into the wound. The sheath of the ligament is then split open by blunt dissection (Fig. 3). The sheath and the peritoneum are stripped back in the direction



FIG. 1.—The finger is introduced through this opening in the preperitoneal fat and feels the round ligament without difficulty, for it is brought into prominence by tension on the forceps which holds its uterine end.

of the uterus, completely divesting the ligament of its covering. It is then drawn out of the wound, and forceps slipped underneath retains it until the opposite ligament is raised and denuded in the same way (Fig. 3). If the uterus has been in a state of marked retroversion, the ligaments will have become so attenuated as to allow their approximation in the median line in front of the recti, which approximation will restore the uterus to its normal position.

5. When it has been determined that the ligaments are long enough to meet in the median line, they are each left looped

over forceps while the peritoneum of the median incision and the recti muscles are closed with continuous kangaroo or catgut sutures.

6. The ligaments are next approximated in front of the recti and tied together (Fig. 4).

7. Now, beginning in one angle of the transverse incision, the cut edges of the aponeurosis are stitched together with a continuous kangaroo suture. When one or two loops of the suture have been passed, the needle, in crossing the interval between the two edges, is made to pass through the ligament. It is well also

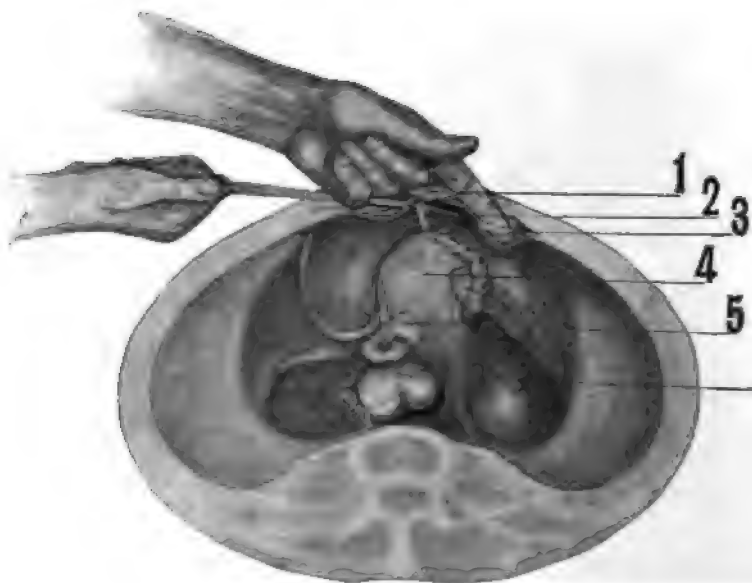


FIG. 2.—The finger is hooked under the extraperitoneal portion of the ligament from below upward, drawing it into the wound. 1, recti muscle; 2, intraperitoneal portion of the round ligament; 3, extraperitoneal portion of the round ligament; 4, uterus; 5, ovaries; 6, rectum.

to pick up a little of the muscle on each side of the ligament in order to provide against dead spaces. This process is continued as each successive loop is passed until the centre of the incision is reached, when the free end of the suture is clamped and left long. Starting in the other angle of the transverse incision (but looping in a contrary direction, so that when the two sutures meet their free ends may be on opposite sides of the wound), a second strand of kangaroo unites the edges of the aponeurosis on that side and picks up the round ligament and

adjacent portions of the muscles as before (Fig. 4). The kangaroo tendons are tied together and the ligaments are thus embedded and firmly anchored between the aponeurosis and muscles.

8. The structures in front of the aponeurosis are closed in the usual manner.

If now the ligaments have not become stretched very much,



FIG. 3.—The sheath of the muscle is then split open by blunt dissection, and forceps slipped underneath retains it until the opposite ligament is raised and denuded in the same way. 1, round ligament with covering; 2, round ligament with covering removed.

or if the recti are very wide, or both, it will not be possible to bring the looped ends of the ligaments together. In this case they may be drawn up and carried mesad only so far as is necessary to replace the uterus, and moored as above; or they may be cut off at their distal ends and their free extremities thus brought together or made to lap in the median line.

The ligaments thus embedded contract extensive adhesions with the aponeurosis and muscles—adhesions which are sufficiently strong to support the uterus after the sutures have been ab-

sorbed. Direct suturing to the aponeurosis attaches the ligaments to a tissue possessed of strength and elasticity—elements that are necessary for the ideal fixation of a support upon which the weight of the womb and the ever varying degrees of intra-abdominal pressure are exerted. Supports attached to fixed points, such as bones, or fascia in close proximity to the same, receive the total effect of any force suddenly applied to the supported body, and in consequence often suffer injury on the application of a force which would do them no harm were these points less firmly fixed. The aponeurosis is strong in texture, but yielding as a whole, in the area to which the ligaments

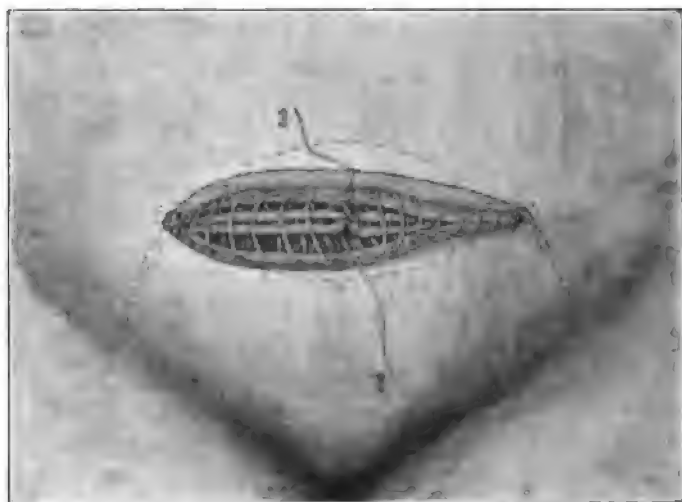


FIG. 4.—The ligaments are next approximated in front of the recti and tied together. Now, beginning in one angle of the transverse incision, the cut edges of the aponeurosis are stitched together with continuous kangaroo sutures, the loops of which are made to pass through the ligaments. 1. round ligament tied in the centre of the wound; 2. aponeurosis; 3. free ends of kangaroo sutures.

are anchored, since its bony attachments are some distance away. Consequently the traction exerted upon the anchored ligaments, varying as it does with so many circumstances, is not borne entirely by them, but is participated in and modified by the elastic parietes of the abdomen.

In an article published in the *Atlanta Journal Record of Medicine* of October, 1899, and appearing in the *Transactions of the Southern Surgical and Gynecological Association*, vol. xii, 1899, I reported a number of operations based upon the principle

ples embodied in the present description. At that time, however, I used no transverse incision, but, having cut through the abdominal wall in a vertical direction, I dissected between the aponeurosis and muscle, opened the posterior sheath at the outer side of the rectus, raised the ligament and sutured it between the aponeurosis and rectus after the manner above outlined. The combined transverse and vertical incision renders the operation easier and lessens the liability to subsequent hernia.

When, in April, 1893, I first suspended the uterus in the way described, I waited almost three years before repeating the operation, preferring to discover if any disappointing symptoms should supervene rather than to proceed unguardedly with a multiplicity of cases. In this instance the woman had laborious domestic duties which put the method to a severe test, but with such a gratifying outcome that I began repeating it; and now, after a trial of several years, I employ no other procedure for anchoring the uterus, except when the saving of time is a consideration, or when such circumstances as removal of both appendages or the previous occurrence of the menopause warrant the simpler method of ventrosuspension.

I have now suspended the uterus by intramural anchorage of the ligaments sixty-seven times. The cases thus treated embrace all degrees of retroversion and prolapsus; the patients represent all classes of society. I have followed carefully the twenty-three operations done in my private infirmary and most of those done in the Grady Hospital. I could not hope for more satisfactory results. In no case have there developed subsequent to the operation any unpleasant symptoms traceable to the method of suspension; in fact, in only a few instances were there any which might not follow any exploratory abdominal incision (slight infection in two cases). The relief of the annoying symptoms which warranted surgical intervention is prompt. The uterus remains high and freely movable.

The operation possesses many advantages over others designed to relieve the same conditions.

There is but one incision; through it any pelvic complication may be treated.

The weak distal end of the ligament is not depended upon for support, as in the operations of Alexander, Wylie, Emil Borde, Mann, and others; the portion utilized is the strong uterine end.

. The operation is applicable to a greater number of cases than other round-ligament operations.

It does not interfere with the normal mobility of the uterus and its physiologic development during pregnancy.

It causes no vesical irritation or dysuria if the ligaments are not embedded too low down, and no dragging if they are not brought through too high up.

The anchorage is superior in permanency to all peritoneal attachments; the uterine portion of the ligament will not stretch away.

There are no sutures in the fundus to irritate the uterus.

The womb is not anteverted, as Emmet claims is done in the Alexander operation, but is suspended in the axis of the pelvic brim.

The fixation is extraperitoneal; no irritated point invites subsequent adhesions to the abdominal viscera.

The operation does not predispose to hernia, not infrequently after the Alexander operation; the round ligament does not pull open the internal abdominal ring by constant strain on its inner border.

There is no encroachment upon the bladder nor interference with its distension, as the round ligaments are drawn a very little nearer to the median line than normal.

Abnormal shortening of the ligaments does not occur; the "slack" only is taken up and the ligament restored to its natural length.

The round ligaments, therefore, accommodate themselves to the increasing size of the uterus in pregnancy and subsequently undergo involution the same as the uterus.¹ The peritoneal bands or adhesions in ventrosuspension stretch in pregnancy, but do not reshorten or contract after labor. In respect to this feature the ligament operation is particularly fortunate.

The peritoneal investment is not drawn into the abdominal walls, producing funnel-shaped depressions and inviting hernia—a criticism applicable to some other operations.

The danger of the operation is about on a par with exploratory abdominal incision. The separation of the peritoneum is not a serious question. The deep epigastric vessels are to be kept in mind. When the ligaments are being raised the operator's finger is to their inner side and usually they are not seen. If they are drawn up with the ligament they can be recognized and separated from it.

¹This is shown by a number of cases passing successfully through pregnancy and parturition.

TWO HYSTERECTOMIES FOR FIBROMA UTERI.

SUDDEN DEATH TWENTY-FOUR DAYS AFTER OPERATION IN ONE, TYPHOID
FEVER WITH RECOVERY IN THE OTHER.¹

BY

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THE present attitude of the gynecologist toward fibroids of the uterus differs from that of a decade ago, and this position toward these benign growths is the outcome of experience and judicious investigation. Experience has demonstrated that these growths, though pathological in every way, may remain *in situ* with comparative impunity to the patient—comparative impunity, because, even after the lapse of many years, the quiescent stage may give place to changes in these tumors which call for radical operations. The profession has realized the fact that the number of fibroids which give rise to no symptoms, and of patients who are ignorant of harboring these growths, are indeed very great. Fibroma uteri is quite a common pathological condition, but calls for no special treatment. These tumors need not be removed simply because of their presence. But while the gynecologist has embraced this spirit of conservatism toward fibroids of the uterus, he has also been formulating data for his guidance in handling them when they become rebellious and give rise to symptoms. These established and much-emphasized data are that a fibroid of the uterus which gives rise to hemorrhage not yielding to other treatment should be removed by operation. The tumors that give rise to pain and cause suffering and invalidism should be dealt with in the same radical manner. Again, the growths that cause pressure symptoms, by their very bulk and impaction in the pelvis, call also for operation; and, lastly, an operation is imperative in those fibroids that undergo pathologic changes. These formulated data for the removal of fibroids have borne good fruit, because patients with fibroids, who are ailing with conditions not directly depending on the tumors, have been kept from radical operations that might endanger life. A

¹Read before the Woman's Hospital Society, November 25, 1902.

case in point is that of a patient who has been under observation for six years. She began to suffer with abdominal distress, constipation, and pain in the back. She was just passing through her period of menopause with concomitant nervous manifestations. After being under treatment for some time, her medical attendant discovered a fibroid and referred her to a gynecologist who advised operation. A second consultant failed to agree as to the advisability of radical measures and counselled waiting. In a few months the patient was rid of all her symptoms and has remained well since. In this case the tumor gave rise to no hemorrhage, no pain, no pressure, and was not the seat of degeneration, none of the symptoms enumerated above. Its mere presence, though admitted that it is pathological, did not call for radical measures.

These remarks do not apply to fibroids complicated with abdominal disease. Cases of this class form a group by themselves and must be dealt with accordingly. When a fibroid of the uterus is complicated by tubal, ovarian, or other pathologic conditions of the abdomen, these lesions themselves, and not the tumor, may demand operations. Cases of this class are frequently encountered, and in these the tumors should, of course, be removed when the lesions are being dealt with. There is a class of fibroid cases, where the tumor gives rise to no symptoms, where the general health of the patient is good, yet the question of operation becomes imperative on account of the mental state of the patient. The patient's knowledge of her condition has a depressing psychological effect and no amount of assurance will convince her that her condition is not alarming and dangerous. It may be in the best interest of these patients to operate, remove the tumor, and relieve their anxiety. It should not be forgotten, however, in considering the advisability of an operation for this condition alone, that sometimes these cases, in spite of operation, will lapse into melancholia.

If hysterectomy, or even myomectomy *per se*, would have no mortality rate, the removal of every fibroid tumor would be the proper procedure, because a fibroid of the uterus is a pathological state; but surgeons, even of large experience, consider the operation a major one, attended with mortality, as is any other major operation. Not alone is there a mortality in the operation of hysterectomy, but fatal complications occur even in clean cases where the question of sepsis, hemorrhage, and shock does not arise.

These complications are of various kinds, and some of them of such a nature that they cannot be even formulated before the operation. An unusual complication, resulting fatally, occurred in the following case:

Mrs. N., aged 44 years, was first seen in October, 1900. The patient had noticed an enlargement at the lower part of the abdomen for the past two years. She had been married fourteen years, but had never been pregnant. She enjoyed good health up to a year before, when she began to complain of abdominal distress and pain in the bladder. Frequent urination was troublesome, especially at night. She had had bearing-down pains for the past three months, and was unable to stand on her feet for any length of time. Her menses had always been quite profuse, and had been much more so for the past two years. The flow had become very irregular, and for the past three months she had been flowing almost continuously. The patient was anemic and suffered with headaches and insomnia. She had been losing in weight. Her bowels were constipated and loss of appetite was a prominent symptom. The metrorrhagia was troublesome. She was greatly incapacitated by being obliged to keep quiet, as motion aggravated the flow. In fact, if it were not for the constant flow she would not have sought relief, as she could bear the pain and pelvic discomfort, although at times they were very severe.

Bimanual examination revealed an abdominal tumor completely filling the true and false pelvis. The cervix was crowded against the pubic bone and was palpated with some difficulty. The posterior cul-de-sac was obliterated by a large mass which filled the true pelvis. The fundus of the uterus could not be distinguished from the general tumor mass, but the direction of the sound in the uterine canal showed the organ to be pushed over to the left side of the pelvis. Examination of the chest was negative. The urine obtained by the catheter at the time of the examination was normal chemically and microscopically. Inquiring carefully into the remote history of the patient elicited the fact that she was subject to abdominal pain of an acute nature at various times. The history of these attacks pointed strongly to that of peritonitis, and the findings on abdominal section verified these statements. She had never had rheumatism. Her family history was entirely negative.

On opening the abdomen numerous coils of intestine were

found adherent to the tumor. After liberating the growth from all adhesions, it was found that the mass which obliterated the cul-de-sac, raised the uterus, and was so prominently felt by the vagina, was an intraligamentous fibroid springing from the side of the uterus. This mass was removed first, after tying the round ligament and ovarian artery. With this mass out of the way, room was gained for freer manipulations, and a supravaginal amputation was performed according to the Kelly method. From the anterior surface of the tumor and uterus sufficient peritoneal flap was obtained to cover the cervical stump, the fresh surfaces of the pelvis, the stump of the ovarian artery and round ligaments. The abdomen was then closed without drainage. The operation was clean, complete, and satisfactory. It was hoped that the shreds of adhesions on the intestine would take care of themselves, as no fresh peritoneal surface was left in the entire pelvis. The patient made a rapid recovery from the operation. The temperature and pulse remained normal; bowels moved on the second day without a cathartic or enema. On the eighteenth day the stay sutures of silkworm gut in the abdomen were removed, revealing on palpation a firm, primarily well united abdominal wound. Bimanual examination showed entire absence of tenderness in the pelvis, the cervix was movable, anterior and posterior culs-de-sac free, not a sign of induration or exudation. On the twentieth day patient was allowed to sit up in bed, and the exertion was followed by no reaction. On the twenty-first and twenty-second days after operation the patient left the bed and was in the best of spirits, feeling well in every particular. She slept well, appetite was good, she was cheerful in spirit, with strong hopes of a rapid gain of strength. On the twenty-third day the patient was up and about the room several times during the day. On the following morning she dressed herself without assistance and sat down for breakfast, when she was suddenly taken with a sharp pain in the chest; she cried out, fell from the chair in a faint, became cyanosed, gasped for breath, fell unconscious, and died in about five minutes. No autopsy was permitted.

These dreadful cases of sudden death have received careful attention from a number of investigators, and the outcome of their inquiry is that they are due to thrombosis and embolism of the pulmonary artery. Thrombosis occurs in some of the pelvic or femoral veins; the clot, dislodging, is swept away by the

blood current and enters the right auricle, passes into the right ventricle, the systole of which drives it into the pulmonary artery. A small embolus, or even a number of small emboli, may cause but transitory disturbance in the activity of the heart and prompt recovery follow the accident. An embolus, however, may be so large as to completely plug the vessel, resulting in sudden death. Even a very small embolus may cause death with frightful rapidity in the following way: The small embolus, having arrived in the right ventricle of the heart, becomes entangled in the chordæ tendineæ, thus forming the nucleus of a much larger clot, which is suddenly driven against the pulmonary artery, effectually plugging the opening or causing fatal reduction of the calibre of the vessel. Kelly, in his "Operative Gynecology," says: "Death from embolism has occurred after myomotomy, removal of the tubes and ovaries for myoma, hysteromyomectomy, extirpation of a carcinomatous uterus, exploratory incision for carcinoma, ovariectomy, ventrofixation, and curettage of a cancerous cervix." "Relatively the greatest number of cases has occurred after myoma operations, which exhibit so large a proportion as eighteen out of a total of forty-three cases" (Gessner).

Pulmonary embolism is not so rare an accident as one is led to believe in hunting up the literature on the subject. The fatal cases reported are comparatively few. A large number of cases recover and many of the milder attacks are not diagnosed. In obstetric cases pulmonary embolism is not so very rare. Three cases have come under my observation. In one of these the accident proved fatal, and the two others recovered. In the fatal case the accident occurred on the tenth day after a normal labor and puerperium. In the second case the embolism occurred on the third day after a normal labor. The attack was very mild, and when I saw the case in consultation, an hour and a half later, the patient had practically recovered from the attack. In the third case a pulmonary infarction had occurred on the sixteenth day after a forceps delivery. The case occurred in my own practice. The patient was kept in bed fourteen days after confinement, the attack coming on after being out of the bed for two days. It took six weeks before the symptoms cleared up in this patient. Had the embolus in this last case been septic, a septic pneumonia would probably have been the result. In

making a diagnosis of these attacks the possibility of air embolism should be kept in mind.

Symptoms of Typhoid Fever one week after Hysterectomy.—Miss S., aged 27 years, had noticed an enlargement of the lower part of the abdomen for some eight months. She had always been vigorous; enjoyed perfect health up to six months before. Since then she had been disturbed with pelvic distress and was obliged to abandon her work as a saleswoman. She frequently had attacks of pain in the left lower quadrant of the abdomen. These attacks were so acute that her medical attendant had to resort to morphine to give relief. Her menses had become very profuse in the past two years; before that they were always quite regular. Six months ago she had a very severe uterine hemorrhage, which was controlled with difficulty. Since then she had been flowing as much as twenty days out of each month. Patient was very anemic, nervous, and irritable. Her sleep was restless, appetite poor, bowels regular. I saw the patient in one of her attacks. The abdominal pain was localized over the tumor mass, which was plainly palpable through the abdominal parietes. The pains simulated those of labor, and I believe they were caused by uterine contractions, the organ trying to expel the large submucous fibroid shown in the specimen. At the time of the consultation I thought the pains were due to a localized peritonitis. Why uterine contractions severe enough to cause pain should have occurred so periodically I am unable to explain.

Bimanual examination revealed a movable tumor connected with the uterus, reaching half-way up the umbilicus; there was a profuse flow present, and the patient claimed to have flowed continuously for twenty-two days. The tumor felt smooth, like a pregnant uterus. The uterine sound showed the organ to be five inches deep. The patient was put to bed and appropriate diet and tonics prescribed. An operation was later advised and accepted by the patient.

The nature of the operation was carefully explained to her, and, under proper aseptic precautions, the abdomen was opened in the median line and a supravaginal amputation of the uterus and tumor performed. Having obtained an ample peritoneal flap from the anterior wall of the uterus, all stumps and raw surfaces were covered with it, suturing it in place with a continuous catgut suture. The abdomen was then closed without drainage. The patient bore the operation well, leaving the table

with a pulse of less than 100. The reaction was prompt; pain was comparatively slight, requiring only one-eighth of a grain of morphine hypodermatically. The temperature on the night of the operation rose to 100° F., but dropped almost to normal on the following day. By the third day after operation convalescence was fully established, the bowels having moved with the aid of a small dose of calomel. The temperature and pulse were normal, there was entire absence of pain, the patient felt well and cheerful, and everything was propitious for a speedy recovery.

On the seventh day the patient complained of a severe headache, which called for morphine by mouth to give relief. The temperature began to rise and reached 103° F. The pulse also rose to above 100. The dressings were removed, and the abdominal wound was found practically healed; not a sign of induration was to be noticed about it, and there was an entire absence of tenderness. Nor did a vaginal examination help to clear up the temperature question. A blood examination failed to show malarial plasmodia, and I was surprised to find an absence of leucocytosis, the leucocytes being 6,000. The absence of leucocytosis at once suggested typhoid infection and a Widal test was made; the reaction was, however, negative. The headaches continued; prostration was great; the tongue became coated and furred, tympanites appeared, and a temperature range of between 104° F. in the evening and 100° to 101° F. in the morning. Diarrhea set in, the number of movements ranging between eight and twelve in twenty-four hours. These diarrheal movements were rather characteristic of typhoid. Another Widal was made, but the reaction was negative. Repeated careful physical examination failed to elicit any other symptoms but those enumerated above, and by exclusion a diagnosis of typhoid was justifiable, although there was an absence of Widal's reaction. The subsequent history of the case bore out the diagnosis. The treatment of the case consisted in a careful regulation of diet, attention to the function of the skin, and sponging when the temperature rose above 103° F. In three weeks the temperature subsided rather suddenly, the tympanites improved, the tongue became moist, the diarrhea gave way to normal bowel functions, and convalescence was finally established, the patient recovering fully without complication.

The clinical picture in this case was not that of sepsis. At the onset of the disturbance the patient passed from comparative

health to great physical prostration, with clinical symptoms of typhoid. In connection with this subject of negative Widal's reaction in the presence of clinically positive typhoid fever the recent literature on the subject is of interest. Since the Widal reaction has come into general use to aid in the diagnosis of typhoid fever, it has been observed that no such reaction occurred in a limited number of cases of otherwise typical typhoid. Careful bacteriological investigations of the secretions and blood of patients ill with typhoid with negative Widal's revealed the fact that the bacillus isolated from these cases differed from the typhoid bacillus in certain characteristic culture reactions. They did not behave like the Eberth bacillus. The organism isolated received the name of paratyphoid bacillus. Further bacteriological studies showed that there is a group of these paratyphoid organisms, and that they are intermediate between the so-called colon bacillus and that of typhoid. These germs differ from the colon bacillus in the power of the latter to coagulate milk. The paratyphoid organisms cannot be utilized for agglutination reaction to aid diagnosis, because, there being a group of them, they do not all respond to the same blood.

At the recent meeting of the New York State Medical Association, during a symposium on typhoid, the question was under discussion, and it was shown that the paratyphoid bacillus gives rise to a systemic infection identical with typhoid fever. The temperature range is high, prostration is great, and relapses occur in about ten per cent of cases. The fever lasts, on the average, about three weeks and subsides rather abruptly. The infection by this organism is not very rare is shown by the fact that thirty-eight carefully-studied cases have been reported during the past year. A report of fourteen cases of this infection is given in the *Münchener medicinische Wochenschrift* of October 21, 1902. In only one of those cases was a Widal reaction obtained, and in that case the agglutination test of the paratyphoid bacillus was also present. The case, therefore, was one of double infection.

115 EAST ONE HUNDRED AND SIXTEENTH STREET.

SARCOMA OF THE UTERINE PARENCHYMA.¹

BY

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SARCOMATA arising in and developing from the myometrium as a multinodular new growth of the uterus is a very rare and, from a clinical and pathological standpoint, one of the most interesting diseases of the female genital tract. Not more than seventy or eighty such cases are to be found described in the literature. It would seem that no very accurate clinical study of this class of sarcomata of the uterus had been made. Their histogenesis is undetermined and is a question which has led to much discussion. Some investigators believe that they arise through a metaplasia of the muscle cells of a pre-existing myoma of the uterus and are myosarcomata; others, that they arise in the connective-tissue cells of such a tumor; still others, that they are primary sarcomata of the myometrium. It would seem probable that the first theory is most frequently the correct one; possibly some arise from the connective tissue and others from the myometrium. I offer this short description of the histogenesis to call your attention to the present status of our knowledge of these tumors. I wish to-night simply to present before you the clinical history and a brief pathological study of the one case coming under my observation.

Mrs. B. H., a white woman, married thirty-nine years, aged 57, the mother of ten children, was admitted to the Gynecean Hospital under my care on April 10, 1902. Her previous history was negative; she had always enjoyed excellent health until her present illness. The menstrual function was established at 15 years of age, and, except during pregnancies, was regular and normal, not very profuse, and continued from five to seven days. Her labors were normal. There was no history of uterine disease or tumor. The menopause was established at 50 years of age and without complication. In the spring of 1901, about a year

¹Read before the Section on Gynecology, College of Physicians of Philadelphia, December 18, 1902.

before coming under observation, her health began to fail; she lost markedly in weight and complained of pain in the lower right side of the abdomen. She gradually grew worse, and in August, for the first time, discovered a nodule the size of a hen's egg in the right side of the abdomen. A few weeks later the right limb became swollen and painful; she was unable to walk and was compelled to go to bed. This subsided under treatment and she was again about for a few days, when the same symptoms developed in the left limb. This also was relieved by treatment. The tumor rapidly increased in size, became more painful, and she continued to fail, now more rapidly, in general health. There was no hemorrhage or other discharge from the genital tract. The diagnosis of rapid-growing myoma of the uterus was made and she was referred to me.

A pelvic examination determined the following conditions. Vaginal outlet multiparous. Small bilateral laceration of the perineum. Cervix multiparous. A multinodular tumor of dense consistence filled the pelvic cavity and extended into the abdomen as far as the umbilicus. It evidently developed from the uterine body, and particularly involved the posterior wall of the cervix. The mass was immovable and intimately connected with the pelvic wall and the tissues beneath the posterior vaginal vault.

Considering the absence of the usual symptoms of a myoma of the uterus, the great rapidity of growth of a multinodular solid tumor in a woman well advanced in the post-climacteric period of life, and the intimate attachment of the tumor, with rapidly failing health, a diagnosis of sarcoma of the uterus was made.

Thinking that it was still possible to completely remove the growth, and, because of the possibility that we were mistaken in our diagnosis, the tumor might be a rapid-growing myoma, exploratory celiotomy was determined upon. At the operation performed April 14, 1902, the undoubtedly malignant character of the disease was at once discovered, and that it extended into the uterine ligaments to the bony pelvic wall. The abdomen was closed. The patient died three days later.

Pathological Report.—The specimen removed at necropsy through the celiotomy wound consisted of a large multinodular tumor of the uterine body the size of an adult head, and the tubes and ovaries. The nodules were interstitial in position and developed mostly in the myometrium to the right of the uterine cavity. The endometrium was smooth and intact.

throughout its entire surface. There was slight congestion in the left uterine cornu. The myometrium was normal in appearance and varied in thickness from one to two centimetres. The right uterine wall contained a nodule fifteen by ten centimetres in diameter, which bulged into the uterine cavity. The right tube was tortuous and elongated, measuring seventeen centimetres, and was stretched over the chief mass. About the wall of this tube were several hard nodules the size of marbles, one measuring four by six centimetres. The left tube and ovary were apparently normal. Several nodules were attached to the posterior surface of the supravaginal cervix. On section the nodules were found to be indefinitely encapsulated and wholly surrounded by myometrium. The tumor was made up of pink and yellowish homogeneous tissue, soft in the centre and growing firmer toward the periphery of the nodule. A whitish juice exuded from the cut surfaces. The new growth extended to the bony wall and it was necessary to cut through tumor substance in order to remove the mass. Microscopic sections made from the endometrium showed nothing abnormal aside from a glandular hyperplasia; those from the tumor masses spindle, becoming round-cell sarcoma. The degenerative process was fatty.

The histological study of this tumor is as yet incomplete. We have been unable to demonstrate whether it is an instance of the metaplasia of the muscle cells of a myoma or the myometrium into a myosarcoma, or whether the tumor had its origin in the connective tissue of a myoma. There is no positive evidence that there was a pre-existing myoma of the uterus, yet we have no information that would disprove this belief. The clinical history is that usually gained: that a multinodular tumor, very rapid in growth, developed some time after the menopause, with rapid loss of weight and failing health.

We hope in the near future to present a careful and thorough histological and clinical study of this case with those reported in the literature.

HEPATOPTOSIS.

BY

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OSLER opens his lectures on "The Diagnosis of Abdominal Tumors" by quoting Bishop Butler's maxim, *i.e.*, "Probability is the rule of life"; and the more I study abdominal tumors the more I am impressed with the astuteness and profound knowledge of this great clinical teacher. The errors in diagnosis of obscure abdominal tumors will never be fully known, for the surgeon always falls back on the exploratory incision to supplement his deficiency in diagnostic technique, and seldom looks the least bit perturbed, however far from the true conditions they may have been. Having, not long since, made an erroneous diagnosis in a very instructive case that proved to be on exploration one of hepatoptosis, I hereby report it and the peculiarities it presented. Displaced and movable livers are quite common, but a liver so movable as this proved to be will not be met in many thousand examinations.

Mrs. W., aged 32, the mother of three children, all of whom were delivered by Dr. Zimmerman, who referred the case to me for diagnosis and operation. The last confinement occurred three years since, soon after which the woman noticed a lump in her abdomen, most prominent at first just below the costal border. It did not give any pain, and while several opinions were given, no two alike, it resulted in the patient not following any. The only regional symptom the patient complained of was a dragging sensation in the abdomen, but not sufficiently painful to cause actual disability. The woman is thin, pale, sallow, emaciated. Leucocytes normal, red corpuscles normal, hemoglobin only sixty per cent of normal. Urine negative, bowels constipated, appetite variable. Never any definite history of jaundice or biliary colic. The abdominal walls are very lax.

When I first examined the abdomen I found the tumor in the right flank, easily moved to the left of the median line, a

down in the iliac fossa of the right side. The edge of the hand is easily insinuated between the rib border and the tumor, neither does the mass rise with respiration. Deep inspiration does not affect its position. The tumor is convex, and at this examination I thought it possessed a decided kidney shape, although very large. I did not feel any sharp border, but did make out a depression that at this examination I considered to be the hilus of the kidney. The next morning, when examining the case, I discovered the kidney *in situ*, and the tumor was not so movable as yesterday, and, furthermore, it now occupied a place partly under the ribs, presenting only a convex, hard, globular mass immediately under the abdominal wall and between the umbilicus and ninth rib. The stomach, when dilated at this sitting, occupied a position entirely below the umbilicus, and decidedly transverse, the greater curvature reaching nearly to the left flank. The tumor was at this examination decidedly globular, and not so movable with the stomach dilated. This globular mass is immediately below the angle of the ninth rib and under the abdominal wall, without any other organ intervening.

While I thought it might be a gall bladder, I also concluded I did not know, and explored the next morning. I made an incision six centimetres long and opened through the outer edge of the rectus directly upon the convex surface of the liver. The tumor is the liver, a floating liver, and a very small liver at that, although macroscopically it is normal. With my hand in the abdomen I could move the liver in any direction, and when the tumor is shoved well to the left side I can easily pass my finger under the vena cava, which is pulled out from its vertebral bed. The gastrohepatic omentum and vessels therein are much thicker and longer than normal. With my finger in the foramen of Winslow I can easily deliver ducts and vessels out of the abdominal cavity. The hepato-renal reflexion of peritoneum is pulled out so that it forms a meso-peritoneum, and so much elongated are the peritoneal reflexions, as well as the elongation or displacement of the vena cava, that I am sure the liver can be delivered out of the abdominal cavity! The gall bladder is normal and does not contain any calculi. The diaphragmatic vault is apparently less arched than normal. The liver cannot be completely reduced beneath the rib as far as it should. The stomach lies entirely below the umbilicus.

As there is a general enteroptosis I did not consider it possible to keep the liver in place by any safe operative procedure, for in this case there is every condition that causes hepatoptosis. First, and what I consider the first step toward the production of a floating liver, an extreme degree of relaxation of the abdominal walls; second, with the relaxed walls there is a general prolapse of all of the abdominal viscera, thus removing from the liver the cushion-like support that these organs give. Third, the vena cava, the greatest support of this massive organ, is so pulled from the vertebral column that it does not support the organ, and the immense blood vessel is the main support of the liver. Farrington and Peare each report a case that is very similar to this of mine.

As for any one condition being the cause of floating liver, it is neither possible nor rational. When the abdominal walls are excessively relaxed and a condition of enteroptosis exists, there is a possibility of the vena cava being gradually pulled from its bed, and it is when all of these conditions exist we find the extremely movable liver herein described. Although the case proved very instructive and interesting to me, I cannot help but hear the words ringing in my ears that ended the lectures of the learned Osler: "Did we reason correctly upon the data before us? No, wir haben nicht richtig gedacht."

1734 ST. PAUL STREET.

STRANGULATED HERNIA IN CHILDREN UNDER ONE YEAR OF AGE. REPORT OF A CASE TWENTY-SEVEN DAYS OF AGE; HERNIOTOMY; RECOVERY.

BY

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STRANGULATED hernia in a child so young is extremely rare and it is my privilege to here record the youngest to have been operated upon by an American surgeon since the aseptic era. Though the writer has been able to find 105 cases of herniotomy for strangulation in which the patient was under 1 year, this number is seen to be small when compared with the number who suffer with congenital hernia. The ground for this statement

based on the result of a research through the German, French, English, and American medical literature, and includes the last compilation on the subject by Dowd, in April, 1898. Since the date of Dowd's paper a period of over four years has elapsed, and only six cases of strangulated hernia in children under 1 year of age have been recorded, and this number includes the one here reported. Thus, in spite of the fact that congenital inguinal hernia is quite common in children, the occurrence of strangulation in a child under 1 year of age is extremely rare. The explanation of the rarity of strangulation in infancy is to be found in the softness, at this age, of the involved structures. Important and exhaustive studies upon the subject have been added to medical literature by Dowd,¹ Stern,² Taniel,³ Knobloch,⁴ Fere,⁵ Marsh,⁶ and others. Therefore the purport of this article is simply to record my own case, and add the scattered cases which have been operated since Dowd's report in 1898, that it may help make statistical material from which future deductions may be drawn.

CASE.—On February 21, 1902, in response to a call from the parents, the following history was obtained from the mother of the patient: J. F., male, 27 days, the second child, had been to all appearances a robust child at birth and had given no more trouble than the first baby. The previous evening the child began to cry and fret as if in pain, and without apparent cause. At the 9 o'clock feeding the nurse was refused and the little taken was immediately vomited. The child vomited again during the night, was cross, and cried almost constantly. In the morning, on changing the napkin because of urinary soiling, the mother noticed "a bunch in the right groin" and sent for me. At the time of my visit she made the positive statement that the bowels had not moved for thirty-six hours.

Physical Examination.—A fat, robust-looking child of usual development. The facial expression was one of pain and distress. A tumor was found in the right inguinal region the size of a hen's egg. Palpation showed it to be very hard and tense, no fluctuation, and absence of any impulse when the child cried. It was, in fact, very tender, any attempt at examination being followed by severe crying and demonstrations of acute suffering.

The diagnosis of a strangulated hernia was given. The child was suspended by the feet, with the head hanging down, and by gentle taxis an attempt was made to reduce the mass.

Failing in the attempt, and realizing the possibility of a hydrocele of the cord, counsel was asked for and agreed to by the parents. I sent for Dr. H. C. Sutton, who not only agreed with the previous diagnosis, but also suggested that, before giving an anesthetic for the purpose of reduction, the child be removed to the hospital, where it would be possible, should taxis fail, to operate at once. The child was immediately taken to the hospital and prepared for operation. In the interval hot sterile applications were constantly applied. Under anesthesia a most thorough yet careful attempt was made at reduction; failing, we promptly resorted to the operation.

Operation.—An incision one and one-half inches in length parallel with Poupart's ligament, was made over the most prominent part of the tumor. The overlying tissues were divided down to the sac. This was now opened and found to contain about two drachms of dark, serous fluid, the lower part of the cecum and appendix, and about two inches of the ileum. The intestines were very dark, due to the severe congestion caused by the strangulation. The point of strangulation was located at the internal ring. The constriction was found to be so very tight that it was impossible to return the gut before cutting through the obstructing band. It was found necessary to divide the latter in two places. An incision was made, with a blunt-pointed curved herniotomy knife, on the inner and upper portions of the ring. The sac was then separated, ligated, and divided at the internal ring. The incisions in the ring were closed with catgut. The canal was closed with a running catgut ligature, care being taken to keep the cord well out of the way. The skin was closed with catgut and strengthened by two silk ligatures. During the closure of the canal the child suddenly became cyanotic and ceased to breathe. The anesthetizer, failing to start respiration, declared the child to be dead. Suspending the operative procedure, blowing in the child's mouth, swinging it, and using continuous artificial respiration, we finally succeeded in resuscitating the little patient. The operation was then finished without more chloroform. In spite of the interference with the aseptic technique of the operation, primary union followed. The day after, the temperature rose to 102°, but dropped the same evening and remained nearly normal during an uninterrupted convalescence.

The wound was dressed with sterile gauze and a large pad of cotton firmly bandaged over the incision. It seems the pad

cotton reinforces and helps to strengthen the canal during the healing process. Should it be necessary for me to perform this operation again on a child so young, I should use the plaster of Paris dressing over the cotton pad. We found it extremely difficult to hold the pad in place with the ordinary bandage.

A word in regard to the technique of the operation. If the operator will start with this point in mind, that he not only wishes to relieve the immediate strangulation, but also produce a permanent cure of the hernia, he will be more particular in his dissections. The incision should be well away from the point of strangulation where the tissues are nearly normal. When the point of strangulation is located at the external ring, the strangulation should be approached from above; when at the internal ring, the opposite incision and approach will render the technique more easy. The more closely it is possible to follow the routine Bassini operation, the more may we expect ideal results so far as the radical cure of the hernia is concerned.

In a case of strangulated hernia in an infant two questions at once present themselves: 1. Should taxis be tried, and to what extent? 2. What is the prospect of relief by operation? In answer to the former, all surgeons agree that gentle taxis should be made after the hot bath, or after hot applications have been applied a sufficient length of time to secure as complete relaxation as is possible. During taxis it is my suggestion that the child be suspended by the opposite foot on which the strangulation occurs, with the leg on the same side flexed, the head hanging down, the body being in the meantime held gently yet firmly by an assistant. This can best be accomplished by placing a thumb over either shoulder and holding the child's back in the palms.

The answer to the second question depends on the length of time after strangulation the patient is seen by the physician and his subsequent treatment. Operation is always demanded; even in apparently moribund cases it may prove the life-saving measure. The prognosis in a given case depends on the amount of previous damage by taxis, and how early to which operative measures have been resorted. "The operation of itself causes little danger to the patient. The real danger comes from injury to the intestines through long-continued strangulation. These infants stand the operation remarkably well. Their recuperative powers are very good, and their wounds are less apt to become septic than those of adults. Thus we see that in hardly any of

CASES OF STRANGULATED HERNIA IN INFANTS LESS THAN ONE YEAR

| No. | Operator. | Age of child. | Variety of hernia. | Contents. | Duration of strangulation. |
|-----|---|---------------|----------------------------|--|----------------------------|
| 1 | C. C. Allison. Western Medical Review, April 1, 1898. Omaha, Neb. | 34 days... | Left inguinal region. | Eight inches of small intestine. | Thirty hours. |
| 2 | Dr. C. McLarin, Lancet, 1281, May 5, 1900. Prince Alfred Hospital, Sydney. | 14 days... | Congenital right inguinal. | Small intestine, four to five inches of ileum (?), some mesentery. | Thirty-six hours. |
| 3 | Mr. D. Arcoy Powers, The Lancet, April 15, 1901. | 5 weeks... | Left inguinal, congenital. | Little piece of mesentery, knuckle of small intestine. | Three days. |
| 4 | Alexis C. Moschowitz, Medical Record, 1901, page 612. | 4 months. | Congenital right inguinal. | Returned without opening sac. | Seven hours. |
| 5 | Alexis C. Moschowitz, Medical Record, 1901, page 618. | 3 months | Right inguinal. | Large and small intestines. | Two days... |

CASES WHICH HAVE BEEN BROUGHT TO THE AUTHOR'S NOTICE THROUGH

| No. | Operator. | Age of child. | Variety of hernia. | Contents. | Duration of strangulation. |
|-----|--|---------------|-------------------------------------|--|----------------------------|
| 1 | Dr. I. S. Haynes New York, N. Y. | 5 weeks... | Right inguinal oblique, congenital. | Intestine, small | From four to six hours. |
| 2 | Dr. Michael Lucid, Tully, N. Y. | 5 months. | Oblique inguinal. | Dark, serous fluid; ileum, very dark. | About twelve hours. |
| 3 | Dr. Michael Lucid, Tully, N. Y. | 3 months. | Direct inguinal hernia. | Small intestine, probably ileum, light serous fluid. | About six hours. |

OF AGE WHICH HAVE BEEN OPERATED SINCE DOWD'S REPORT IN 1896.

| Method of operation. | Result. | Remarks. |
|---|-------------|---|
| Bassini..... | Recovered.. | Dr. Allison makes a misstatement of facts in the report of this case: " But one case of strangulated hernia in an infant at a younger age than this one has been reported " Note Case 1, Case 2 in Dowd's Report (1) and other cases previously recorded. |
| Stitching internal ring. Running stitch in canal. Sac left <i>in situ</i> . | Recovered.. | Possible recurrence owing to faulty technique. |
| Division of constriction at internal ring. Sac isolated and ligated in two places. Distal portion left for tunica vaginalis. Proximal stitched to surface of abdominal wall. External ring closed with a continuous suture. | Recovered. | |
| Sac separated and ligated without cutting or dilating. Closed with a continuous suture. No trouble in reducing contents. | Recovered.. | This case might have been reduced by gentle taxis at the hands of some operators. |
| Opened over tumor. Sac not extirpated. Suturing of overlying structures. | Recovered. | |

DISCUSSION AND CORRESPONDENCE, BUT AS YET HAVE NOT BEEN REPORTED.

| Method of operation. | Result. | Remarks. |
|---|-------------------------------|---|
| Bassini. Fine chromic catgut for all sutures. Time of operation, twenty five minutes. | Primary union. Perfect result | Dr. Haynes says: " This was a typical case. I have dissected a great many infantile subjects of this age, but never operated on the living for inguinal hernia. The structures showed beautifully, and, though delicate, caused no trouble, but came together nicely. The entire Bassini technique was carried out, only I prefer chromic gut to silk. The result was perfect; everything held, even when the baby cried. Of course we didn't let him cry any more than we had to for the first week. Three months after the operation the scar was solid." |
| The MacEwen (radical cure). | Recovered. | |
| Bassini's radical operation for inguinal hernia. | Recovered. | |

the fatal cases was the operation done promptly. In nine of them (speaking of the one hundred previous cases) there was gangrene of the intestines, a condition of collapse, fecal vomiting, etc., at the time of operation. We find repeatedly that the operation was delayed on account of the tender age of the infant and that attempts at taxis were made, one after another, until the conditions were most unfavorable. Delay and repeated attempts at taxis are far more dangerous than operation. One cannot judge closely of conditions by the meagre histories given, but, so far as we may judge, the mortality of strangulated hernia in children under 1 year of age would be considerably less than ten per cent if the operation were promptly done by surgeons who have only the average experience."

The soundness of Dowd's logic is borne out in this report of nine operative cases without a death. It is my sincere conviction that were these cases of strangulated hernia in children operated upon under aseptic conditions, and early, before they had been maltreated by taxis, the mortality need not be more than three per cent.

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2. STERN: Centralblatt für Chirurgie, 1894.
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4. KNOBLOCH: Inaugural Dissertation, Breslau, 1890.
5. FERE: Revue de Chirurgie, 1881, p. 266.
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MANAGEMENT OF DIFFICULT BREECH PRESENTATIONS.

BY

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THIS article is limited to the consideration of those cases in which one is confronted by a *difficult*, but not *impossible* labor with breech presentation. Such a labor is most often seen in the primipara, where the child is disproportionately large because the mother's pelvis is slightly contracted or the child

is unusually large; it may occur in any case in which the cervix, vagina, and perineum are unyielding, and in multiparæ when the child is disproportionately large. It includes original breech presentations and those changed into breech by version. Though I have seen no mention of this method in the literature of obstetrics, many physicians may have previously "discovered" it; at least I am certain that it has not been given sufficient emphasis before the profession at large.

Probably all men practising obstetrics to any considerable extent have been baffled, in their efforts to deliver a child presenting by the breech, by a rigid cervix or by the rapid contraction of the lower uterine segment and cervix, catching the child's neck and the cord, causing death by asphyxiation and strangulation. The child may be dragged out dead. Forceps can sometimes be put on high and delivery thus effected; but all will admit that the application of forceps in that position is perilous to both mother and child. The forceps may grasp and tear off the cervix; and, when properly applied, the forceps can be locked and managed with the greatest difficulty; and the head, often fully extended, cannot be well handled in the very cramped space at the operator's disposal.

Influenced by these considerations, and having watched a skilled obstetrician extract two dead, mutilated babies, I was led to devise some method of escaping that dangerous lower uterine segment and cervix. This plan also avoids the difficulties caused by a small, non-elastic vagina and rigid or friable ("wet pasteboard") perineum. While such conditions offer no great danger to the infant, forceps being easily applied after the head is out of the uterus, yet the mother is likely to be severely lacerated. In the following description I assume that labor has begun with the breech presenting either normally or following podalic version. It is too late to do external version or in any way escape a difficult breech-presentation labor.

Carefully sterilize the vagina and cervix—to be ready for emergencies—with tincture of green soap, sterile water, and small gauze sponges, followed by a douche of a mild antiseptic solution, as creolin two per cent. Allow labor to progress naturally until the breech is down nearly to the perineum—until the child is sitting on the recto-vaginal septum. If the cervix is not disposed to dilate sufficiently to allow this, dilate it with the fingers. Dilating instruments are of no use in this operation; none of them will dilate the cervix sufficiently, aside

from the risk of traumatism and additional danger of infection. The operator's hand must be *thoroughly* sterilized.

Now, with breech well engaged, put the patient in the dorsal position with knees drawn up, and anesthetize profoundly. With the sterile hand carefully dilate the vulvar orifice, closing the hand and withdrawing the fist slowly. If necessary, introduce the other hand open beside the closed fist, continuing until the perineum is well stretched. At the same time fully dilate the vagina up to the presenting breech. Now gently push the child upward and bring down both feet; or, if one foot presented before, bring down the other. Both feet are brought down to give the operator better control of the child, rendering easier any necessary rotation, and to avoid luxation, or at least strain of the child's hip joint.

With the child's thighs in the cervix, reintroduce the hand—the palm of which, in the semi-prone position, corresponds to the child's abdomen—and dilate the cervix and lower uterine segment *thoroughly* until they are practically paralyzed. Upon the completeness of the dilatation depends the success of this method. While dilating the cervix, gradually withdraw the chloroform, so that, from now on, the woman can aid in expelling the child; preferably, however, she should remain partly anesthetized. See that the cord is out of the way. Grasp the feet and draw the child slowly down until its umbilicus is nearly to the mother's vulva, while an assistant—or the operator's own hand, if necessary—keeps the head well flexed, so as to avoid extension and consequent catching at the pelvic brim. The operator now makes stronger traction while the assistant presses down on the head firmly; if the woman is sufficiently aroused from the anesthetic, instruct her to expel the child with all her strength. The head then passes down the parturient canal, escaping the grasp of the uterus; a little rotation of the child's hips, or side-to-side pull, serving to deliver the child to the shoulders.

The arms and shoulders are then quickly delivered, delivering the posterior arm first, then rotating and delivering the opposite arm (following the method well described on page 786 of Hirst's "Obstetrics," third edition). The assistant then takes the child, while the operator quickly but carefully delivers the head with forceps.

I have given this method careful trial with the most happy results. I omit cases, as I have followed exactly the method

given above—once with no assistance excepting that of a very inexperienced anesthetizer, a nurse, where the patient's pelvis was uniformly contracted.

The advantages of this method of delivering breech presentations are:

1. The time of labor is shortened.
2. There is little or no laceration of the mother.
3. The child is neither strangled nor mutilated.

THOUGHTS ON THE PROPHYLAXIS OF PUERPERAL ECLAMPSIA.

BY

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DEFICIENT elimination is such a certain forerunner of puerperal eclampsia that some of the French authors almost justify the use of a new name for this disease—stercoremia gravidarum, for example. Puerperal eclampsia presupposes retained excretions; at least by no possibility can skin, lungs, liver, bowels, and kidneys be in good working order. The compound, complex, circulating poison which produces toxic effects on the nerve centres is composed of ptomaines, leucomaines, ammonium carbonate, and a group derived from excrementitious products. If a chemical formula is ever devised for the substance causing the toxemia, "nitrogen" and "carbonic acid" will be written down q. s.

The indications for treatment seem quite plain. Simply restore elimination and all will be well. The nervous centres are all irritated and ready for that explosion called uremic convulsions. Therefore the physician should avoid noise, whispering, and sudden movements. In other words, having made the diagnosis, keep the patient free from alarm and anxiety. Begin with the skin and increase the perspiration with the hot wet pack at 110°. This has given most brilliant results; one physician reporting thirty-six patients and no eclamptic seizure (Ahlfeld). Dr. Baruch's book on "Hydrotherapy" gives clear directions for the cold wet pack. The mode of application and the manipulation of the sheet are the same. In feeble women begin with five-min-

ute packs, followed by brisk friction of skin. If well borne, increase the duration to an hour. Two or three hours is a perfectly safe treatment, but I have not found it necessary. I saw a case to-day in consultation (December 3, 1902) where the albumin had decreased from $12\frac{1}{2}$ per cent by bulk to 6 per cent according to the attendant, within forty-eight hours. (Sparatein was given internally for good reasons.) The hot pack was advantageously combined with irrigation of the bowel. The amount of perspiration quite surprises one. In this case the nurse said it must have been "a quart." The many advantages over the cumbrous and dangerous hot-air bath need not be pointed out. Inasmuch as the pregnant woman is only too well supplied with CO_2 , this quotation from John Dalton (page 244) "Enclosing one of the limbs in an air-tight case, the air in which it is confined loses oxygen and gains carbonic acid," shows that the treatment is rational. And the plethoro-anemia of the patient demands diaphoresis.

It is possible to rectify the pulmonary deficiency (relative with the above pack and by decreasing the amount of CO_2 , to be excreted, by frequent small venesections (see paper on "Preventive Treatment of Puerperal Eclampsia"). Many seem to think that the idea of venesection is to relieve pressure in some way, forgetting that large quantities of normal salt solution are often introduced through the same artificial orifice from which blood has escaped, all being performed at a single sitting. Most pregnant women have increased arterial pressure, and simple investigation will discover pulse beats which would be alarming if accompanied by abnormal urine. Venesection is only a direct method of withdrawing some of the nitro-carbonate-oxide of putrefaction and waste from the blood. "Final products of excretion represent the organic elements of the food plus the oxygen which has been absorbed" (Dalton). "A ptomaine is a putrefactive alkaloid" (Da Costa). "Blood pressure cannot be lowered directly by bleeding unless the quantity removed be dangerously large" (M. Foster). Little and daily is the rule and the antipyretic effect is valuable but, after single large bleedings, only temporary. The subject of irrigation with normal salt has been thoroughly gone over by Dr. Kemp in his discussion of my paper on the "Preventive Treatment of Puerperal Eclampsia." The fact that diuresis can be obtained in twenty minutes may not be generally known; and, by the thorough cleansing of the bowels, the destruction and elimination of po-

sons by the liver and the expulsion, before absorption, of toxins from the bowel are brought nearer to the normal. Schiff and Lautenbach found that blood, if the portal vein was ligated, would kill when injected into another animal. Bouchard produced violent convulsions in rabbits by a dialyzed extract of healthy human feces.

In conclusion, I would emphasize the physiological fact that the pulse softens after venesection, not because of less blood pressure from the abstraction of blood, but because of the withdrawal of toxins which irritate the nerve centres. In other words, you are practically administering just as much of a sedative as though you exhibited chloral and bromide, with the additional advantage of removal of the cause. The heart slows down; not that the load is less, but the whip is broken.

The baneful effects of the "eclamptic toxemia" depend largely on compounds of nitrogen. Therefore, if we carefully lower the amount in the food and increase the aggregate of its discharge from the economy, we have gone a long way in the prophylaxis of a disease whose dangers do not stop with delivery. In diet a vegetist is, theoretically, better fed than a "lactivorist."

121 WEST EIGHTY-EIGHTH STREET.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, December 9, 1902.

The President, EGBERT H. GRANDIN, M.D., in the Chair.

LARGE FIBROMA OF THE LEFT OVARY, INTIMATELY CONNECTED WITH
THE UTERUS, NECESSITATING HYSTERECTOMY;
UNEVENTFUL RECOVERY.

DR. HERMAN J. BOLDT.—H. L., æt. 44 years; married at 26; had eight children, the last six years ago. Menstruation began at the age of 16 years, always regular. The flow was never more than of from three to four days' duration. Ten months ago she began to have pain in the right side of the pelvis, and shortly afterward a gradually enlarging tumor was noticed above the symphysis. The pain disappeared and she considered herself pregnant, although menstruation continued regularly. During the past four months the tumor increased rapidly in size, so that at the time of her admission into the hospital it filled the entire abdomen, extending three inches above the umbilicus. Com-

plained of pressure in the abdomen, constipation, and frequent micturition. She had lost twenty pounds in weight since the growth made its appearance. The diagnosis was a solid tumor of the left ovary. The feature of interest during the operation was that its base was in the broad ligament, so that during enucleation it was necessary to work in close proximity to the ureter, and because of its intimate relation with the uterus it gave the impression that it was an intraligamentous fibroid; but if we examine the specimen it will be seen that the Fallopian tube crosses the summit of the neoplasm and the fimbriae are distinctly seen. The normal ovarian structure is absent. There is a possibility that it has been destroyed by pressure, but from the appearance of the specimen I look upon the growth as being of ovarian origin. For this reason, and on account of the rapid growth during the last four months, I would like to have the specimen submitted to our pathologist.

DR. W. S. STONE.—I saw a specimen, in the laboratory of the College of Physicians and Surgeons, of supposed fibroma or fibromyoma of the ovary which, detached from the gross appearance of the specimen, I was unable to determine its nature. After making the several sections it was found to be a fibromyoma uteri that had been detached from the uterus and become adherent to the ovary.

DR. W. TRAVIS GIBB.—While I was an assistant to Dr. Polk I remember operating for fibroids of both ovaries. The fibroids were the size of the closed fist and well marked.

DR. ANDREW F. CURRIER.—I suppose these cases are rare. I remember a case at the Woman's Hospital of this kind. The patient was one of Dr. Thomas', and the tumor was the size of the closed fist, and the clinical diagnosis was made by Dr. Thomas before the patient was operated upon. She was a large and very fat woman, with a large quantity of ascitic fluid in the abdomen; I recall that as being one of the peculiar features in connection with the case. I remember well Dr. Thomas stating at the time that it was a very rare and interesting case. The operation, so far as I could judge, was very simple, although the patient died shortly afterward. I should like to ask Dr. Boldt the result of operation in his case.

DR. H. J. BOLDT.—The patient recovered.

SUBMUCOUS MYOFIBROMA; ABDOMINAL HYSTERECTOMY.

DR. HERMAN J. BOLDT.—Patient æt. 30, school-teacher, single. For two years she suffered so much from profuse bleeding as to incapacitate her from her duties. While the tumor is not large, eight by ten centimetres, it could not be pressed into the pelvis, and the vagina and the pelvic floor were so rigid that it was deemed best to remove it per abdomen. Both adnexa were left and attached to the small part of the uterus which was left. It will also be noticed on the specimen that an enucleation of the tumor would have been impossible; it forms an integral part of

the uterus. No psychical disturbance has so far manifested itself, which undoubtedly is due to the retention of the adnexa.

BILATERAL TUBO-OVARIAN ABSCESS; ABDOMINAL HYSTERO-SALPINGO-OÖPHORECTOMY.

DR. HERMAN J. BOLDT.—The patient was sent to my service at St. Mark's Hospital by Dr. Goode. She had been an invalid for several years as the result of recurring attacks of pelvic peritonitis. An exudate in the pelvis extended about three fingers' breadth above the symphysis. Because of the intimate and extensive intestinal adhesions the operation proved unusually difficult. The intention was to do it per vaginam, but because of the danger of injuring intestines the abdominal route was preferred, after making a more careful examination under ether. Since her discharge from the hospital she feels perfectly well.

MYOFIBROMATOUS UTERUS WITH EXTENSIVE PELVIC PERITONITIS; ABDOMINAL HYSTERECTOMY; RECOVERY.

DR. HERMAN J. BOLDT.—The patient, 34 years of age, began to menstruate at 15. Menorrhagia for several years. During the last four years she had intense pain in the lower abdomen. The interesting feature was the unusually extensive pelvic peritonitis, which made the base of the tumor so adherent that the operation was unusually difficult. She developed pneumonia three days after the operation, which delayed convalescence somewhat. One ovary was left and attached in the pelvis. None of the usual neurasthenic symptoms have manifested themselves, which may be ascribed to retention of the ovary. That it was impossible to leave the other ovary may be seen from the specimen. Its dimensions are four by six centimetres. It contains one colloid cyst, and other degenerative changes are present. The tube is in a condition of chronic inflammation.

TUBO-OVARIAN ABSCESS; VAGINAL CELIOTOMY.

DR. HERMAN J. BOLDT.—In this instance the affected adnexa were readily accessible through a posterior vaginal section, hence this course was pursued. It was, however, much more difficult to separate the adhesions than would have been the case if an abdominal section had been made. It should be the rule that if the operation intended can be satisfactorily done through the vagina, this route should be selected. On the other hand, one should not go to extremes and endeavor to do operations by this method which could be better and more conservatively done if approached from above; this latter is the case, in my opinion and in my experience, in operations for chronic inflammations of the uterine adnexa.

DERMOID TUMOR OF LEFT OVARY REMOVED BY VAGINAL CELIOTOMY.

DR. HERMAN J. BOLDT.—The patient, 31 years old, had two children, the last ten years ago. For nine years she complained of a pain in the lower abdomen, and for several years noticed a swelling there. Examination showed a tumor which extended to

about half way up to the umbilicus, and reached down into the pelvis so as to cause a bulging of the cul-de-sac. Its consistence was of an irregular hardness; the uterus was crowded upward. The ovaries could not be palpated, but because of the greater prominence being on the left side, where there was also severe pain at times, it was concluded that the tumor originated from the left ovary, and was thought to be a dermoid because of its consistence. As it reached to the pelvic floor, vaginal section was considered the more desirable point of approach. The operation proved the correctness of the diagnosis. As usual in such instances, the pelvic peritoneum was soiled to some extent during the enucleation. The adhesions were regularly separated by passing the hand into the peritoneal cavity alongside of the sac. A pelvic peritonitic exudate delayed the convalescence somewhat. This has occurred so frequently in vaginal operations for dermoid tumors that I question whether the vaginal route is the most desirable for such tumors, even if they are on the pelvic floor.

MYOMATOUS UTERUS; SUPRAVAGINAL HYSTERECTOMY; BOTH ADNEXA RETAINED AND ATTACHED TO THE REMAINING UTERINE STRUCTURE; RECOVERY.

DR. HERMAN J. BOLDT.—The specimen is presented with a full report from Dr. Brooks, because one of our colleagues expressed his doubt as to the justifiability of having removed the uterus, but suggested that it might have been possible to enucleate the tumor. The patient is 28 years old, single, and suffered from metrorrhagia so much as to incapacitate her from attending to her vocation.

Dr. Brooks' report is as follows: "Microscopic examination of the tissues removed from tumor and uterus showed the following: Sections through the endometrium showed the latter to be in an advanced stage of hyperplasia with marked cystic degeneration. The cysts were in some instances still filled with fluid which had been coagulated by hardening agent employed. The intertubular tissue was of the round-celled type with occasional areas of induration (fibroid). Sections from the soft, glistening portion of tumor showed a loosely-arranged fibrillated tissue, in the meshes of which is a colloid or mucoid substance, coagulated by the fixative. It represents, in my opinion, a degeneration such as is described in all standard text books on general pathology. Sections from firm portions of the tumor showed the typical features of fibromyoma, so well described everywhere." The microscopic examination of the endometrium shows it to be in an advanced stage of hyperplasia with marked cystic degeneration. The tumor itself is in a state of beginning colloid degeneration.

MYOFIBROMA OF THE UTERUS; CONGENITAL ABSENCE OF THE LEFT TUBE AND OVARY; SUPRAVAGINAL HYSTERECTOMY; RECOVERY.

DR. HERMAN J. BOLDT.—The patient, Mrs. H., is 47 years old, never pregnant. She had always been troubled with profuse menstruation, but during the past four months she had profuse

metrorrhagia. Her appearance was cachectic. Since the beginning of the metrorrhagia she noticed an increase in the size of the abdomen, and about the site of the tumor she had pain. The neoplasm filled the pelvis and encroached more on the right side in the abdominal cavity; it reached up to a line on a level with the umbilicus. It was irregular in contour and seemingly adherent to the abdominal parietes. About the operation itself there was nothing unusual; but while the right tube and ovary were normally developed, the left adnexa were absent. The most careful search failed to show even a trace of rudimentary adnexa. The specimen was subsequently examined by Dr. Brooks, the pathologist to the hospital, and he, too, failed to find any trace of the adnexa on the specimen. To have overlooked them in the abdomen is out of the question.

DR. J. RIDDLE GOFFE.—In reference to Dr. Boldt's case of hysterectomy for fibroid tumor, I wish to say that I do not consider myomectomy contraindicated in such cases on account of the condition of the endometrium alone, unless it be cancerous. Dr. McCosh has recently reported a number of these cases in which he did myomectomies and curetted the endometrium. In all the cases he had a careful examination made of the scrapings, but, with the exception of one instance in which there was believed to be accidental contamination, he failed to find by microscope or culture any pathologic bacteria. Therefore, so far as fear of infection from the endometrium in cases of fibroid tumors is concerned, it seems to me we have been entertaining needless fear. Cystic degeneration is not a contraindication; there is no reason why the endometrium should not be curetted away and a healthy interior to the uterus secured.

I wish to mention a case operated upon this fall. A myomectomy was done by abdominal section, removing a large fibroid from the wall of the uterus. In doing so I encroached upon the endometrium and broke through. The endometrium was cystic and degenerated. I saw no reason for not curetting the endometrium, which I did through the hole in the top of uterus, performing a transperitoneal curettage, so to speak. After that I passed a dilator through, dilated the cervix, and placed a strip of gauze through into the vagina. I then sutured the mucous membrane of the uterus, then the muscular structures, and then the peritoneum. The patient made a simple and nice convalescence. Therefore I think that we may disregard the condition of the endometrium so far as contraindicating myomectomy in these cases. To what extent the involvement by the neoplasms may contraindicate myomectomy is a nice question, to be determined by careful examination, and depending somewhat upon the experience of the operator. The indications for myomectomy are being rapidly extended.

PERITONITIS; INTESTINAL OBSTRUCTION; CAUSE NOT FOUND.

DR. HERMAN J. BOLDT.—The patient was seen by me about

midnight of December 2. The following history was given by her physician: She was taken ill suddenly on the morning of December 2 with excruciating, cramp-like pain in the abdomen, which was referred to the right side, in the cecal region, as the point of greatest intensity. She was seen about the time of its onset by Dr. Broder, who gave her a hypodermatic injection of morphine and sent her home in an ambulance as soon as she felt relieved. Six years ago she was operated upon by me for mobile rectocele and flexion. When seen with Dr. M. Lewinsky her temperature was normal, pulse 134, respiration not counted, but it was accelerated; appearance pale, as we find those in collapse. Examination of the pelvic organs was negative; the uterus was well contracted and anterior so far as could be determined per vaginam, bimanual examination being impossible. The abdomen was sensitive in its entirety, but especially so in the lower part from about two fingers' width above the umbilicus. It seemed as though a large exudate was in the abdomen. It was said that her bowels had moved normally the day previous and slightly that morning. No cause for the sudden onset of the pain could be elicited from the history. No diagnosis could be made, except that she had peritonitis, and it was thought best to make an exploratory laparotomy. Extrauterine pregnancy and appendicitis had been discarded by me as probable causative factors. The only other condition which was thought likely by us to have caused the sudden attack of peritonitis was the rupture of a perhaps existing pyosalpinx, because the patient had been under the care of a physician in Chicago for supposed pelvic disease, said to be ovarian inflammation. At all events, it was deemed best to send her to the hospital at once and explore the abdominal cavity without delay. On arrival there she was given a high enema to empty the intestinal tract—no result. An ice coil was applied to the abdomen. When seen about 8:30 A.M. the patient said that she felt much better; and although the abdomen was not quite so much distended as during my first visit, nor quite as rigid, it was still evident that an intense peritonitis was present. Her relatives requested consultation by medical men before the intended exploration should be done. This was cheerfully acceded to. She was seen in consultation with Drs. W. H. Porter and H. Thomson; while Dr. Porter agreed as to the desirability of making an exploratory section, Dr. Thomson thought it best to wait and continue the enemata, to see whether the obstruction which was seemingly present could be relieved by other means. It was stated by the nurse that flatus had escaped after the enema, and also a few scybala. After another enema more flatus was passed. Her condition when seen about 5 P.M. was undoubtedly worse. Dr. Einhorn, who happened to be in the hospital, was good enough to see her with me, and directly afterward Dr. Thomson saw her again at the request of relatives. All agreed to the desirability of making an exploratory section to find out the cause of the trouble, no one having made a definite diagnosis.

On opening the abdomen it was found that the pelvic organs and the appendix were normal. The entire intestinal tract was carefully searched without finding the seat of obstruction. It was evident that the cause of the peritonitis was not from any macroscopical lesion in the abdominal cavity. It was an acute intestinal paralysis, caused by an acute peritonitis of undiscoverable origin. A trocar puncture made into the small bowel gave exit only to some fluid previously introduced by the enemata. This was likewise the case through the opening made by colostomy. Death ensued thirty hours later with gradual increase of the symptoms of intestinal obstruction. The autopsy did not shed additional light on the cause of the peritonitis.

DR. J. RIDDLE GOFFE.—I should like to ask Dr. Boldt if any attempt was made to obtain cultures from the exudate or serum of the abdomen.

DR. H. J. BOLDT.—I cannot say.

DR. J. RIDDLE GOFFE.—I should like to recall a case somewhat of similar character to the one reported, occurring in a young woman in whom peritonitis was undoubtedly due to ptomaine poisoning. She was the wife of a physician and she and her husband had been calling on some friends in the evening and had been served with refreshments. Lobster was one of the articles of diet. During the night both were taken with intense cramps in the abdomen attended with active emesis and diarrhea. The husband, after a complete evacuation from promptly taking salts, made a recovery. The wife, however, developed a high temperature the following day, and the case ran on to an acute and extremely malignant form of peritonitis. Nothing seemed to help her. Dr. Wyeth and Dr. Bull were called in consultation, and it was finally decided to make an exploratory incision. This was done and nothing was found in the pelvis or abdomen to account for the peritonitis. The appendix was involved in the general inflammation and was removed. The patient died promptly. The general opinion was that we had to deal with a case of ptomaine poisoning. No lesions were found that could account for the inflammatory action.

DR. JOSEPH BRETTAUER.—I should like to ask Dr. Boldt if the peritonitis was purulent.

DR. H. J. BOLDT.—No.

DR. BRETTAUER.—Was there serous exudation?

DR. BOLDT.—Yes.

DR. BRETTAUER.—It is a difficult thing to discuss this particular case in the absence of a bacteriological examination and report. If the serum that was present in the peritoneal cavity contained the colon bacilli, then, of course, explanation is easier. Cases have been frequently reported as being idiopathic peritonitis, but they are really cases of secondary peritonitis. Personally I believe that in cases of chronic constipation, or chronic colitis, with superficial ulcerations in the course of the colon, without any rupture of the gut, it is possible that some of the

colon bacilli may wander through the intestinal wall at places where the epithelial lining is interrupted and cause peritonitis.

DR. W. T. GIBB.—Recently I had a case similar to the one reported. It was one of general peritonitis, with much enlargement of the abdomen and all the other symptoms of peritonitis. The gentleman I had in consultation said there was a large abscess surrounding the appendix. Still, a positive diagnosis could not be made, as the abdomen was so tense. The abdomen was opened and, so far as could be seen from the gross appearance, no trouble was found in the appendix, which was no more inflamed than the rest of the peritoneal surface. There seemed to be no other cause for the trouble. The appendix was taken out and the patient made a prompt recovery. On opening the appendix there was found a partial obliteration of its lumen.

DR. R. A. MURRAY.—It is not uncommon to find appendicitis where no perforation or necrosis has occurred and the appendix vermiformis grossly exhibited no more marked signs of inflammation than the rest of the peritoneum infected by it. There was no limiting layer of fibrin and the peritonitis was diffuse and very severe and sudden. I have seen three cases recently where appendicitis was easily diagnosed by the hardness or brawniness of the abdominal wall over the appendix, and a large exudate with pus, forming a tumor, was diagnosed by the operating surgeon, but on opening the abdomen very few adhesions, no pus, and an imperforate inflamed appendix was found with diffuse peritonitis. The onset was sudden and quickly prostrating in each instance. I do not believe in idiopathic peritonitis.

DR. H. J. BOLDT.—The appendix was found to be smaller. There were no evidences of inflammatory signs beyond those associated with the general serous peritonitis. Whether a bacteriological examination was made or not I do not know. The case occurred only a couple of days ago. I can say, though, with positiveness, that nothing was found except an ordinary general diffuse peritonitis. I should like to ask Dr. Brettauer if, in those cases in which the infection comes from the colon bacilli, the attacks were as acute in character as in the instance which was related. This woman was perfectly well, and the attack came on suddenly in one who was in the best hygienic surroundings. When the history of the case was given me I first thought of a perforation of the appendix or ruptured ectopic gestation.

With regard to the cystic degeneration, I did not bring it up as a question of the indication for operation. I simply mentioned it as a pathological finding by Dr. Brooks. As the specimen shows, it was a case of colloid degeneration of the tumor, and it would have been impossible to enucleate the tumor by means of a myomectomy; that was entirely out of the question.

DR. A. F. CURRIER read the paper of the evening, entitled

THE SCOPE OF VAGINAL INCISION.

He said that it would be impossible to present any subject to

the Society for discussion which had not been tested and upon which most of those present had not formed an opinion. In the judgment of some of the workers in this field, the advantages of the vaginal route were exaggerated to the detriment of the method which was based upon the median abdominal incision, and it was believed by them to be unwise to abandon a method which had resulted in such inestimable advantages and benefit in favor of one which, whatever its merits, was not without disadvantage and danger. This discussion had resulted in the re-establishment of the value of the abdominal method of procedure, and had also led to the enlargement of the scope of vaginal incision, and had given us many new and valuable indications for the treatment of pelvic and abdominal disease.

By vaginal incision we take the term in its most comprehensive sense, whether the cut be anterior to the vaginal portion of the cervix, circular, or posterior to it; a lateral incision, for particular reasons, an anterior incision with lateral prolongations, a median incision at right angles to the anterior or posterior one, or any other modification that may be made to meet individual requirements. The circular incision has its sphere of usefulness almost exclusively in those cases in which the uterus is to be removed either with or without the appendages.

The usefulness of the anterior incision with its modifications is somewhat more extensive, but Dr. Currier preferred the posterior incision in almost all cases. The posterior incision affords the greatest amount of working space.

It seems to be a fact that a section of the peritoneum by way of the vagina makes less impression upon the vital forces than one made through the abdominal wall, though we cannot give an explanation that is satisfactory. It may be because fewer tissues are invaded, or because of different relations in the nerve supply. The opportunity for drainage and irrigation by the vaginal incision was incomparably superior to that which may be derived by the abdominal route. Should hemorrhage occur after a vaginal operation, we have the most positive evidence of its occurrence and can usually relieve it by pressure more efficiently and with less danger to the patient than by the formidable operation of opening the abdomen. The elimination of the possibility of hernia in almost all cases is also no inconsiderable advantage.

The anterior vaginal incision may be made for certain diseases and dislocations of the uterus, for certain diseases of the tubes and ovaries, and occasionally for the treatment of inflammatory exudates within the pelvis. The most frequent indication for operating upon the uterus through the anterior incision is retroflexion. It is essential for the success of such an operation that the uterus be movable or but slightly adherent, that it be not greatly enlarged, and the pelvis of at least the average dimensions. The uterus, having been brought to the front, may be fixed in the anterior position by shortening the round ligaments,

by attaching the body to the supravaginal cervix, or by attaching the body to the anterior vaginal wall. The method of vaginal fixation was not entirely successful, and he thought it ought to be abandoned, excepting in those cases in which the child-bearing period was past. If the anterior wall of the uterus was the seat of myomata, intramural or subperitoneal, such growths might be removed through this incision. Pyosalpinx, hydrosalpinx, and ovarian tumor are occasionally located in the anterior segment of the pelvis, and if they are unattached they can usually be removed through this incision. Inflammatory exudates and collections of pus in the anterior segment of the pelvis and in the subperitoneal tissue may be drained through the anterior vaginal incision. An additional incision in the groin may be useful in effecting more perfect drainage and irrigation. The anterior incision will occasionally prove a valuable aid in diagnosis.

The field of usefulness of the posterior vaginal incision was a very broad one.

1. It is distinctly valuable for the aid it renders diagnosis. The advantages in such cases are enhanced if the uterus and its appendages are movable. If the uterus is not movable it is unwise to attempt to drag it down. Many conditions other than gynecological can be diagnosed through this incision, as tuberculous deposits of the omentum, enlarged retroperitoneal glands, disturbed conditions of the intestines, etc.

2. Treatment of pelvic exudates by this method is subject to limitations. The fingers have not the same mechanical advantage in breaking up adhesions as they would have through an abdominal incision. The danger of injuring the intestines in such manipulations is ever present and the abdominal route would be safer. If a pelvic abscess is found it might be perforated with a trocar, the pus drawn off, the cavity irrigated with a mild antiseptic solution, the incision enlarged with the scissors or a dilator, a canula fixed in the incision, and irrigation performed once or twice a day until the discharge ceases. This treatment had relieved many to such an extent that they refused further operation.

3. Tumors of the ovaries and tubes, if not too firmly adherent, may be removed by this route. If the uterus has been mutilated in the attempt to remove the tumor, it may be necessary to remove it as well, but there was no logic in removing a uterus simply because it might give trouble later. If the mass within the pelvis is too dense and firm the operation may be completed by means of an abdominal incision. Dührssen suggested that if a tumor is on one side only of the pelvis, and the uterus fixed, the broad ligament on the diseased side may be divided close to the uterus, between a double row of ligatures. The uterus, thus liberated, may be drawn out of the vulva or pushed to one side of the pelvis, thereby giving space for the release and removal of the tumor of the ovary or tube, which might not otherwise

be readily liberated. He suggested, furthermore, that it was possible to make the section of both broad ligaments, should that be deemed desirable.

4. The class of uterine myomata in which there is a distinct pedicle and in which the tumor is troublesome.

5. Intraligamentous cysts might be attacked from below and enucleated; in these cases the subsequent drainage of the cavity which remains is more satisfactory and the operation less formidable by the vagina than by the abdomen.

6. In addition to the knowledge which the posterior incision gives as to the location and surroundings of the displaced uterus and appendages, it also affords the opportunity for their release if they are not too firmly adherent, for their removal if they are sufficiently diseased, and for their replacement should that form of treatment be indicated.

7. The posterior vaginal incision may also be used for the drainage of accumulations of fluid in the abdomen resulting from tuberculosis, liver and kidney disease, and malignant new growths. This method of treatment had not yet had the trial that it deserved. Tuberculosis of the peritoneum is often cured by section and drainage; and though the other diseases cannot be cured, distressing symptoms may often be relieved. The removal of ascitic fluid gives but partial relief; permanent drainage by a vaginal incision, a curved tube of metal or glass being retained in the vaginal opening, and irrigation with salt or boric acid solution, would be a valuable palliative measure in a large series of distressing cases.

8. The posterior vaginal incision had also a field of usefulness for the parturient and puerperal condition. Ovarian tumors with long pedicles, which have acted as insuperable obstacles to delivery, have been removed by this route. Dührssen had advocated this route as an approach to a ruptured uterus, the broad ligament on either side being divided, the uterus drawn down, and the rent closed after the location has been actually determined by inspection. In puerperal septicemia with perimetritic induration and possible abscess, the vaginal incision with irrigation and drainage would often prove a life-saving measure. The advantages of this method had not yet been appreciated by the profession. Some gynecologists advised the vaginal operation for ectopic gestation during the first few weeks of its history, if the tumor is no larger than a fist or a child's head, if it lies low in the pelvis, and if hemorrhage is not present and has not been present for several years. Dr. Currier considered this dangerous advice, as it is not always possible to say whether hemorrhage is not taking place in such tumors, and it is certainly easy to excite dangerous hemorrhage by the manipulations required for the removal of such a tumor through the vaginal incision.

DR. W. M. POLK.—I think it is desirable for us to bear in mind that this is not child's work. No one should attempt it

until he is familiar with work by the suprapubic route. It is dangerous to attack an extrauterine pregnancy from below. The point brought up with regard to the difficulty of controlling hemorrhage and the danger of sepsis is well taken, and I have been surprised that any should attempt to control hemorrhage by any other than the suprapubic route.

The other point is well taken with regard to supporting a retroflexed uterus, and I know that it is quite in keeping with work that has been done by members of this Society who are regarded as experts in this operation. I have been led to understand that at Kaufman's clinic, the operation can be done better from below. It seems to me that to determine the plan of the work we should first decide whether its methods are of more value than those in vogue.

DR. H. L. COLLYER.—I heartily approve the method of emptying abscesses before doing an abdominal section; many cases, I believe, are saved in that way. As already stated, eventual further operation may not be required. This has been my experience. So far as the vaginal fixation of a retroflexed uterus is concerned, I have ceased to operate in that way. It does not relieve the patient satisfactorily, and it adds new symptoms frequently worse than prior to operation.

DR. J. RIDDLE GOFFE.—I find that the subject of vaginal section for the treatment of pelvic disease in women is attracting steadily increasing attention. This paper of Dr. Currier's is renewed evidence of it, and I, in common with all of us, feel under personal obligation to the author for this interesting review of the work of German operators in this field. I am a firm believer in the advantages and possibilities of the vaginal method and am constantly extending its range of application in my work.

In large pelvic abscesses with patients much emaciated from disease of long standing, or in actively acute cases, we all know it is preferable to make an incision in the vagina and evacuate the pus from below. Now, why do we choose this in preference to laparotomy? Because we believe that it is for the best interest of the patient, gives less shock, less traumatism, and a greater rapidity of procedure. Dr. Grandin, when he has a case of ectopic gestation, before opening the abdomen makes a vaginal incision to confirm his diagnosis. Why? Because it is a simple and safe procedure and may save the patient from a laparotomy—a procedure which he deems more unfortunate for her. When his worst fears are confirmed he feels that the risks of laparotomy are justifiable and proceeds to do it, although some men, in many instances, prefer to complete the work through the vagina. It seems to me, reasoning from two classes of cases, that, as a rule, any work that can be done as safely and as satisfactorily from below as from above, from the standpoint of the patient, is better done from below. I think that this is a proposition that all are willing to accept. Then the question arises, what conditions should be treated through the vagina, from below, as safely and as

ficiently as from above? That is a matter of personal experience. For myself, I find that almost any condition that is found within the true pelvis can be treated as efficiently, as promptly, as satisfactorily, to myself, to the patient, and to the patient's future health, from below as from above. It is a preferable method for many reasons aside from its safety, and therefore I employ it.

The question now comes up as to the incision that should be made. Dr. Currier favors the posterior incision, and he seems to draw a line sharply between the two. In my practice it is common to make both incisions. If I have a retroverted uterus, with prolapsed appendages, bound down by adhesions, I make a posterior incision to break up adhesions in Douglas' pouch and along the base of the broad ligaments, and then the anterior to complete the work. When it comes to the removal of the appendages or treating them surgically, resecting tubes or ovaries and other conservative work, I find that these organs can be reached far more easily and satisfactorily through the anterior incision. If we remember the normal position of the uterus, that the fundus is pointed toward the symphysis pubis, it becomes apparent that it is necessary to depress the fundus only through a very short arc of a circle to bring it down into the vagina. The fundus in the vagina forms with the broad ligaments an inclined plane with the appendages on either side. They can be brought down to the vulva and can be handled with far greater ease than in working through an abdominal incision. Criticism was made at the American Gynecological Society that in doing this work from below the sunshine could never give you light there. You can get as much sunshine at the vulva as you can through the abdominal incision. As to the method of breaking up adhesions, if attacking them through the abdominal incision, the first step we take is to get down to the bottom of the pelvis by a safe route and as promptly as possible, because it is safer and easier to separate adhesions from below up than from above down. The line of cleavage is readily found there, and in coming up along the surface of the diseased and adherent organs the adhesions readily give way, and when the coils of intestines are reached at the top the danger of injuring them is reduced to a minimum. Now, if you are operating through the vagina you can come down at once on the proper starting point for the separation of adhesions, and that is the secret of success in freeing adherent organs, even beyond the field of sight. A little careful attentive experience enables one by touch to discriminate in a surprising manner the various tissues with which we have to deal.

With regard to the efficiency of this method of shortening the round ligaments through the vaginal incision, my experience has been highly satisfactory. The uteri have remained in place. The patients have been anatomically and symptomatically cured. I cannot say that there have been no recurrences. There were several among my early cases, due to errors of technique.

With regard to dermoid cysts, I have removed three through the vaginal incision, and I have experienced no trouble, except in one case where there was a pint of fluid present. No peritonitis developed in this case, but a small collection of pus appeared at the upper extremity of the vaginal incision.

With regard to the method of making an anterior incision, I first make a transverse incision in front of the cervix, then a longitudinal incision at right angles to this throughout the entire length of the vaginal wall. The vagina is then dissected from the bladder for one and a half inches. With a strong retractor the bladder can be carried up against the abdominal wall, and by depressing the cervix with the traction forceps a large opening is made through which one can both feel and see. While I use the posterior incision to break up adhesions, the anterior one affords the better and the greater facility for doing the work. This method offers the best means for doing myomectomy in cases of small fibroids. I operate through the vaginal incision upon tumors situated in all parts of the uterus. Dr. Currier questions the advisability of operating upon tumors situated otherwise than in the anterior wall. I find that the situation makes no difference, provided the fundus can be delivered into the vagina. I remember one case in which I removed seven tumors that were situated in all parts of the uterus, making five different incisions. We are apt to find a multiplicity of pathologic conditions in many cases, and it simplifies matters very much if we are able to begin with the intrapelvic work and then attack the separate conditions as they present themselves on the way down to the vulva. In one case, just referred to, after removing the five fibroids from the uterus I did a curettage, a trachelorrhaphy for bilateral laceration, shortened the round ligaments and then did a perineorrhaphy, all without rising from the operating chair in which I sat. This patient, the wife of a physician, was able to leave the sanitarium on the nineteenth day after the operations and travel three hundred miles to her home. I saw her one year after the operation. She was completely cured.

With regard to this work, I do not think that men who have gained great technique and facility in operations through the abdomen are going to change to the vaginal route. But I do believe that the next generation of medical men who have opportunities in their hospital training to do and see vaginal work are going to practise this method, and the young men will surprise us all by the amount of work and the facility with which they do it through the vagina.

DR. G. G. WARD, JR.—Would you operate in ectopic gestation by this vaginal route?

DR. GOFFE.—I have never attempted it when there has been an active hemorrhage. I have removed the products of conception later on after rupture. I should not hesitate to operate in case there was an unruptured sac.

DR. JOSEPH E. JANVRIN.—There are two points upon which I

should like to dwell. First, with regard to cases of ectopic gestation in which our President and some others make use of incisions through the vagina for diagnostic purposes. I agree with Dr. Polk, and I believe that in these cases, when it becomes necessary to make an abdominal incision to remove that which is to be removed, opening from below may complicate matters seriously. Therefore I have never made use of it.

The other point is in reference to the removal of cysts, dermoid, ovarian, or others, by the vaginal route. We all know that we frequently meet with very extensive intestinal adhesions to the sac. Although I have never tried to remove these large tumors per vaginam, I can well imagine the difficulties of dealing with these firm adhesions from below rather than through an abdominal incision. Therefore, in any case of tumor, ovarian, parovarian, or what not, where I feel that from its long continuance there may be intestinal adhesions, I certainly should not attack them through the vagina, but through the abdomen. In operating by the latter route it certainly is easier for me to dissect off these adhesions from the sac, knowing that I was not taking off portions of the cyst wall itself and allowing them to remain applied to the intestines, and not injuring the intestines themselves, which might happen did I make the attempt from below. I have seen Dr. Goffe operate two or three times for shortening the round ligaments. He has done it very nicely and with success; the anterior opening is, of course, the one he prefers.

DR. G. W. JARMAN.—I should like Dr. Currier to give us some light in regard to broad-ligament cysts. I think that we all have found, when attacking broad-ligament cysts through the abdomen, how exceedingly difficult it was to remove them if they had ruptured. That has been my observation. When broad-ligament cysts have ruptured it is exceedingly difficult to remove them entirely. I have only tried to remove one from below; it was so unsatisfactory that I made up my mind never to try it again.

The remarks made by Dr. Goffe with regard to training men have impressed me. Men who have become experts in working through the abdomen are not likely to adopt any new method. I think, though, that men who are coming on after us, and who are watching the results of both methods of procedure, will do far more work per vaginam than the present generation are doing.

DR. CLEMENT CLEVELAND.—The ground has been so thoroughly covered by the reader of the paper and by those who have discussed it that I have nothing to add. What I wished to speak of was the pronunciation of a word. The doctor, throughout his paper, has frequently spoken of the "va-gi'nal" route. I have frequently made this mistake myself, but it is not correct. It is correct to say "va-gi'na," but not "va-gi'nal." The best authorities put the accent upon the first syllable, which would make the pronunciation "vag'i-nal."

DR. W. S. STONE.—As I have listened to the discussion on this subject I have been impressed with the idea how recently almost all of the men here were doing a large amount of vaginal work. Everybody was recording the operations that he had done through the vagina; there was hardly a doubt as to its value. And now its general use is limited to a few of us. I have thought over the matter carefully and endeavored to study out the reason for this change. The only reason I was able to observe myself, in watching different men operate, was that the incision was always made in a perfectly set style through Douglas' cul-de-sac, was very small, and made the work difficult. When I do not pretend to know anything about vaginal work, I have been impressed with the definiteness with which Dr. Goffe states his propositions. I have recently had one or two fortunate experiences in operating per vaginam in which I have been able to easily remove an adherent gut from inflamed appendages. I believe that most men believe that this is just the field for surgical work, i.e., inflammatory diseases of the tubes. I believe that Dr. Goffe makes a special point of the size and variety of incisions in his work; therefore it may be possible for us to develop further in this way of operation.

DR. JOSEPH BRETTAUER.—My views in this matter were more accurately expressed by the Chairman at a recent meeting when this same subject was before us for discussion. The more experience I become in this way of operating the less often I employ it. It is not because I always make my incision in the posterior cul-de-sac, for I do change according to the site of the lesion to be attacked. But I do this operation less because I feel that I can do better for my patients, for their future well-being, by working through the abdominal incision. If the tubes or ovaries are seriously diseased, and adherent to the pelvic wall, and covered by adherent intestines, the operation from below almost always demands a removal of the uterus as a preliminary step—a sacrifice which I can obviate by abdominal section. The removal of movable cysts, dermoid or others, and small fibroids by vaginal work through anterior or posterior incision, is an easy matter practised by all of us in suitable cases. The anterior incision is used most frequently in cystocele operations in old women, placing through it the uterus from the peritoneal cavity and using it as a truss for the bladder by fixing it to the anterior vaginal wall under the urethra.

DR. H. J. BOLDT.—There is one point that has not been touched upon at all, that of hemorrhage. Those who do much vaginal work perhaps may realize, when they get hemorrhage in doing vaginal work, that it is much more difficult to control than it would be if they were operating from above. Again, there is a great liability of hemorrhage from the broad ligament, high up near the uterus, which would be very difficult to control from below. Also, in making a vaginal incision, especially in the cul-de-sac, one may get a bleeding blood vessel, and here again it is so

times a pretty hard matter to control. It is one of the most difficult things I know of to control such hemorrhages. I have watched one of the strongest advocates of vaginal work, in his attempt to shorten the round ligaments, make the bloodiest operation I have ever seen in a small operation. I must say that this point of hemorrhage has not had sufficient stress laid upon it, and I believe it is a very important matter for our consideration.

DR. J. RIDDLE GOFFE.—I wish to call attention to one procedure that I adopted in three cases for the cure of cystocele in connection with multiple operations, both intra- and extraperitoneal. The anterior incision involves the dissection of the bladder from the uterus and, to a more or less wide extent, from the vagina. It occurred to me that it would be a very simple matter in cases of cystocele, before closing the vaginal incision, to rotate the bladder on its transverse axis and stitch its posterior wall up on to the face of the uterus and broad ligaments. This I have done with most satisfactory results. I believe it is the simplest and most permanent relief yet suggested for the treatment of cystocele.

With regard to hemorrhage attending this operation, it is a rare occurrence to be obliged to use ligatures in working through the anterior incision. But there is a great deal of oozing, and recently I have used Parke, Davis & Co.'s adrenalin chloride, swabbing the site of bleeding and leaving a saturated sponge in contact with the bleeding surfaces for a minute or two, when all the oozing will cease and you will have a perfectly dry field.

DR. JANVRIN.—What material do you use in suturing the bladder to the uterus?

DR. GOFFE.—Catgut. On peritoneal surfaces I prefer silk.

DR. JANVRIN.—I hope Dr. Goffe will report later whether the bladder retained its function and performed it well.

DR. GOFFE.—I will be glad to report this subject more fully soon.

DR. W. M. POLK.—I am sure that Dr. Goffe did not mean quite as much as his words implied with regard to the abandonment of the suprapubic route. I think he said that the young men of this Society would probably, some time in the future, abandon the suprapubic route in favor of the subpubic. As an older member of this Society, and one who can remember when the men who formed it were the leaders in abdominal work and who were recognized as being among the best workers, I will venture, even at the risk of boring the Society, to suggest that the younger members will prove recreant to the trust imposed upon them if they, even for a minute, contemplate the abandonment of any portion of the abdominal cavity which properly belongs to the region of their work. Therefore I trust they will continue to consider that all portions of the body belong to them, providing they have sufficient skill and education to do the work imposed upon them.

DR. J. RIDDLE GOFFE.—In answer to Dr. Polk's remarks I wish to state that I limited that particular comment to work done

within the pelvis. In referring to the young men I did not have in mind those belonging now to this Society, but to those belonging to the next generation; they are the ones who I believe will adopt the vaginal route.

DR. ANDREW F. CURRIER.—The discussion has been very interesting, but there have been no decided issues drawn. The most important point that has been brought forward, so far as I can recall, would indicate that either of these routes will be chosen according to one's predilection and habit. I think that there is no one who has seen Dr. Goffe operate and the skill that he has shown will not doubt why he prefers the vaginal route, and he may be very much convinced that it was desirable in some cases; he would also be very much convinced that the operation was exceedingly difficult in many cases.

The question which was early brought out in the discussion was regard to the treatment of ectopic gestation by the vaginal route, and the emphasis which was made upon the danger of entering by that route by Dr. Polk, were exceedingly well taken. It seems to me, in connection with some cases that I have seen, that it is not possible to make an absolute diagnosis that hemorrhage is not present or has not been present. As Dr. Boldt has so forcibly stated in connection with these cases, the fact that it may be countered is not pleasant to contemplate. I recall a case seen with a colleague in which the patient had the uterus punctured by the doctor in attendance. When asked if she was sure that she had punctured it she said: "Yes, for I could feel the curet upon the abdominal wall." Another physician had subsequently made an incision into the vagina and the patient nearly bled to death. The patient was profoundly septic when she was brought to me. The prospect for an operation was not encouraging, but it was performed and the patient recovered. This is a sample of the conditions we are apt to find, and we can rarely say that we will not find a hemorrhage present or that one has not been present. For myself, I should never attempt to operate upon a case of this nature except by the abdominal method.

Dr. Goffe referred to his preference for the anterior vaginal incision. Those who operate by the vaginal route are not limited to the anterior, or posterior, or both incisions. This is well illustrated by the extensive vaginal work of Dürrssen. He prefers the anterior incision, but admits one may cut anywhere and in any direction in the vagina, according to the circumstances and to the requirements of the patient.

I am sorry that my experience in connection with broad-ligament cysts prevents me from answering Dr. Jarman's question from the standpoint of personal experience. I have seen a number of these tumors, some diagnosed before and some at the time of operation. In all such cases, thus far, I have removed the tumor by the abdominal incision.

The vaginal incision is certainly a rational means of attack

certain conditions, but it is not the only method, and there are occasions when it is not the best.

Concerning the question of hemorrhage, referred to by Dr. Boldt, those who have had experience with the severer forms of bleeding in these operations, especially if the bleeding vessels are large, will admit that it can be controlled more readily from above. But for the purpose of checking oozing, pressure alone is necessary, and the opportunities for doing this by the vaginal route are usually quite as good as, or better than, by the abdominal route.

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Stated Meeting, November 21, 1902.

The President, C. S. BACON, M.D., in the Chair.

DR. CARL WAGNER reported (by invitation) the following cases and presented the specimens:

- I. UTERUS WITH LARGE FIBROID OF CERVIX AND LOWER SEGMENT OF FUNDUS, BLOCKING THE PELVIS, EXTRIPATED DURING LABOR WITH FETUS IN SITU.

I reported this case with full particulars at the Chicago Medical Society. It appeared in the *Chicago Medical Recorder* for June, 1902. According to the literature, this is the first time that this operation has been performed.

Mrs. R., 36 years of age, with a negative family history, had been pregnant fifteen times previously, giving birth to nine children, and aborting six times. Her last child was born three years ago, and her last abortion occurred one and a half years ago. She had never had any gynecological treatment. She had never been ailing. Nine months ago her periodical flow ceased; the course of pregnancy went on without any disturbance until about five or six weeks ago, when the patient experienced a severe chill, followed by very great malaise, and did not feel any more movements of the child. In the course of a few weeks the chills became more frequent and the condition of the patient grew alarming, so that the family physician, Dr. Kreye, was summoned. I saw the case two days previous to the operation.

Status Presens.—A fairly strongly built woman of German-American parentage, with a sallow, feverish aspect. Mammæ, which had been larger, according to her own statement, previous to the first chill, had gradually fallen away; no colostrum in the nipples; abdomen quite large, as at full term of pregnancy; labia not very edematous or varicosed. Temperature 101°, pulse 110. Tongue coated. Labor pains had been present for eight hours.

Physical examination revealed a uterus in size like one at full term, and a hard tumor connected with its lower segment. This tumor extended about four inches above the symphysis, and bilaterally to the inguinal rings. Vaginally I felt a solid, hard, round mass, completely filling out the upper vaginal vault, with an opening in the centre corresponding to the location of the cervical canal. This tumor could be moved with the one felt above the symphysis and the pregnant uterus, all appearing to be a single mass. No fetal heart tones; no maternal bruit.

We concurred in the diagnosis of pregnancy at full term complicated by a fibroid tumor of the cervix blocking the whole pelvic cavity and invading extensively the lower segment of the uterus.



FIG. 1.—Uterus with fibroid of cervix extirpated during labor at term.

Secondly, a dead fetus, because of the absence of fetal heart tones; absence of maternal bruit; the occurrence of chills and malaise, which set in contemporaneously with the cessation of the child's movements; the sudden falling away of the mammae, the fever and the labor pains, which had commenced in the morning of that day. Examination under anesthesia next morning corroborated this diagnosis.

Extirpation of the uterus with everything *in situ* was performed in preference to Porro operation or Cesarean section on account of the condition of the uterus, the child being dead, the placenta macerated, and the liquor amnii decomposed, thus inviting infection of the peritoneal cavity during Cesarean section preliminary to hysterectomy. Enucleation of the tumor by the vaginal route was impossible on account of its size and loca-

tion, invasion of the lower segment of the uterus, and adhesion of the latter to loops of intestines, besides an encroachment upon both of the ureters.

During the operation no difficulties presented themselves until we reached the vesical and ureteral regions. The bladder had been drawn up to the fundal termination of the tumor and had to be dissected off, which proved to be a very tedious task. Laterally the tumor had encroached badly upon the ureters, so that on the right side the ureter was denuded to the distance of an inch and a half, while that on the left side had to be dissected out of the tumor to the extent of two inches. Of course there was reason to fear necrosis of the denuded parts of the ureters. How-



Fig. 2.—Pregnant uterus with fibroid of cervix extirpated at term.

ever, nothing supervened. Posteriorly a conglomeration of six loops of intestines had formed a strong, band-like adhesion to the tumor. This was readily freed and ligated. The intact uterus and appendages, including the tumor, were then conically excised out of the cervix, and the cervical canal cauterized with the *ferrum candens*. One continuous row of sutures brought the corresponding muscular tissues in apposition and closed the canal. Another row of continued sutures adapted the serous layers on top of the stump, and, passing over both sides of the cut edges of the broad ligament, gathered these upon the lateral ends of the stump.

A heavy silk thread was then carried antero-posteriorly through the stump, knotted at the ends, and left long enough

to be rolled around a Maydl's gauze bridge which rested transversely across the lower wound edges. This suture is used as a guy rope, and only cut and pulled out at the time when the external wound of the abdominal incision is almost healed. I practise this in all cases where Mikulicz drainage is employed. The advantages which we secure by this procedure are as follows:

1. This silk suture enables us to draw the stump into close approximation with the anterior abdominal wall, so that we can insert the Mikulicz drainage very easily. This is placed somewhat posteriorly to the stump, between the omentum and stump after the omentum has been drawn accurately over the intestine and made to descend in the pelvis.

2. By holding on to this thread the stump is prevented from falling backward upon the rectum to become adherent there, as well as to loops of intestines which might wander underneath the stump in the pelvis.

3. We produce an abdominal fixation of the stump just as in a regular hysterectomy, as through the constant contact with the anterior parietal peritoneum it will form a solid adhesion.

4. In case of secondary hemorrhage we can easily tamponade against the bleeding stump, as we have a good, solid body of it, and if necessary to search after reopening the wound, it affords great facilities for finding the bleeding blood vessel, as we have with this guy rope a reliable landmark.

5. In case of infection of the stump, the superior posterior part of it is extraperitoneal and lessens the danger of involving the peritoneal cavity.

There is one more point I wish to dwell upon, and that is the question of control of the hemorrhage which has so often proved fatal in these extensive operations. Repeatedly before, and very clearly in this case, I demonstrated to those present that enormously enlarged blood vessels can be dealt with very simply by bearing in mind that when stretching the tissues by means of traction on the tumor and uterus in certain directions, the lumina of the severed blood vessels contained in them do not discharge any blood whatsoever, but the moment one relaxes this traction a tremendous hemorrhage ensues. Very little blood was lost in our case, as the recorded pulse on the history sheet shows. No symptoms of shock followed. The closure of the abdominal wound in such extensive cases, where there is a likelihood of shock following, is reduced to the simplest kind, namely, through and-through sutures with heavy silk, while the corresponding tissues are held in accurate apposition by Kocher's forceps. The course of the convalescence was absolutely uninterrupted. The patient left the hospital seventeen days after operation, in perfect health.

Pathologist's report by Dr. Herzog.—The tumor has the histological features of a typical uterine fibromyoma. It presents, however, the following special points: Most of the non-striated

muscle fibres of the tumor tissue are unusually large; they have evidently, during the course of the pregnancy, taken part in the same hyperplastic processes to which the uterine muscularis is normally subjected in gestation. The tumor is quite vascular and contains more or less necrotic tissue.

II. LARGE SARCOMA OF OVARY AS A COMPLICATION OF PREGNANCY.

This is a very unique specimen and interesting from many different points of view. According to Dsiren's very elaborate statistical monograph (upon 135 cases, comprising all reported to the date of publication), there are only two cases recorded of operations for malignant tumors of the ovary as complications of either pregnancy or labor. The first, of Globelin, represents a cystoma, and the second is a doubtful case by Lee. It is all the more interesting as we know, from pathology of the female genital tract, that malignant tumors are generally bilateral and thus *eo ipso* exclude pregnancy. The patient, aged 42, had been seen, before I took charge of the case, by several gynecologists and surgeons who seemed to have agreed upon a diagnosis of extrauterine pregnancy, while one practitioner had put the patient on ergot, expecting the alleged myoma of the uterus to disappear by this measure.

Dr. Henrotin, who had the kindness to examine the case with me two days previous to the operation, was the only one to suggest the possibility of a pre-existing neoplasm of the ovary which suddenly showed stimulated growing propensity; while I maintained that the uterus, somewhat dislocated to the right side, contained a fetus with a placenta situated in its left horn, and that the use of ergot producing a detachment of the placenta perhaps gave rise to a hematoma in the tube and neighborhood—sudden appearance of the tumor and such symptoms as vomiting, swooning, and sudden severe pain on that side making this idea more plausible. The tumor extended apparently from the symphysis pubis over to the left kidney, and could be removed only with great difficulty on account of many heavy adhesions to the adjacent bowel loops, and also on account of the enormous exudate masses which had transformed uterus, tumor, and the corresponding peritoneum to one great solid lump annihilating all anatomical outlines of the congested organs. The uterus and fetus were procured at the postmortem, the woman having succumbed to an attack of eclampsia and anuria about eight days after the operation. Microscopical specimens made by Dr. Herzog verified beyond doubt the nature of the tumor as a sarcoma of the ovary.

III. DOUBLE UTERUS WITH DOUBLE CERVIX AND PARTIALLY DOUBLE VAGINA.

This specimen is from a patient, 26 years of age, who gave birth to a child in a hospital a year and a half ago, having been taken there six weeks previous to her labor, on account of intol-

erable pains. I saw her on account of hemorrhage from a six-weeks abortion. After examination I informed her that she had two uteri and two vaginæ. The specimen shows that the cervix of the uterus formerly pregnant, now aborted, full of erosions and with a circular cervical canal, lies behind the vaginal septum, which is in such snug apposition to the left lateral wall of the vagina as to leave the impression of only a single and absolutely normally-shaped vagina hiding perfectly the cervix just described. The other cervix has in every respect a virginal appearance and lies almost in the centre of the vaginal vault.

The patient entered the hospital with all the symptoms of a very fulminating peritonitis, with enormous exudate in the cul-de-sac, which, when opened and drained from the vagina, permitted a discharge of about three pints of foul pus. She grew worse and fecal vomiting set in, which made it imperative to laparatomize in order to relieve, if possible, the obstruction.

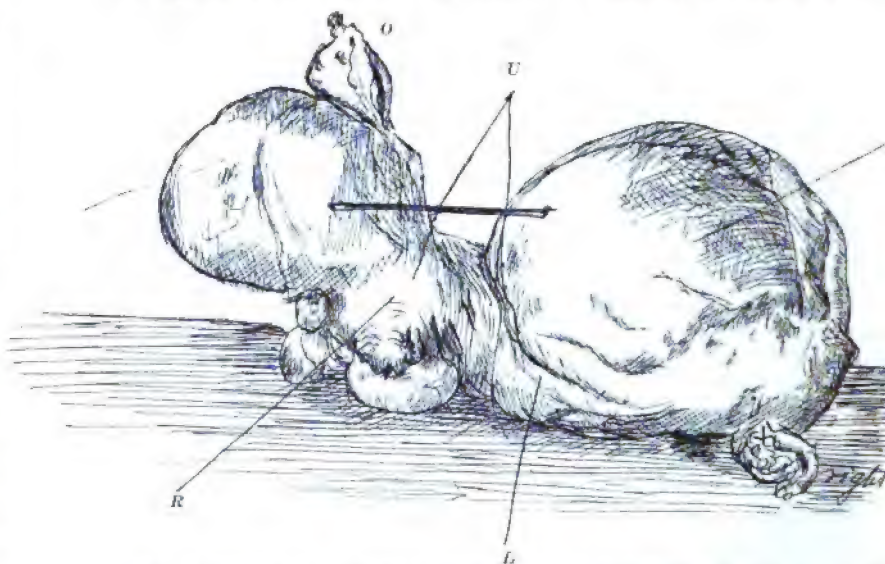


FIG. 3.—Uterus bicornis with large fibroma in each horn. O, left ovary; U, uteri; R, left horn; L, right horn; F, fibroid.

The picture presented was one mass of agglutinated intestines heavily covered with fibrinous exudative layers. The tubes and ovaries, surrounded by heavy, hard masses of exudate, were situated between the intestines in a direction almost directly upward toward the stomach, reaching on one side, with abnormal length, the transverse colon, and on the other the liver. The tubes and ovaries were situated one at the lateral horn of each uterus. The uteri, lying in direct apposition to each other, show, cut open, two distinct canals, cervixes and fundi, and even the mural part at the apposition region is fully developed.

IV. UTERUS BICORNIS WITH LARGE FIBROMA IN EACH HORN AND ALSO MULTIPLE FIBROMATA AROUND THE SMALL FUNDUS.

Uterus bicornis with large fibroma, about the size of a fist, in the right horn, orange-sized fibroma in the left horn, and a number of walnut-sized on the common fundus of the two horns. Each ovary is situated at the extreme lateral end of the respective fibromatous horn. The patient, 26 years of age, had never been pregnant. She suffered greatly from constipation and almost incessant urination, both of which disappeared since the operation. Her monthly period lasted usually from ten to fourteen days and was accompanied by excruciating pains. Some difficulties presented themselves from the right ureter, which for the distance of about two inches was embraced by the fibrous mass of the right horn. Recovery was uninterrupted.

V. DERMOID CYST OF THE OVARY.

This case is demonstrated, in the first place, because, in spite of its four years' existence and the frequent intense pain it had caused the prostrated patient, it has not formed any adhesions, which is almost invariably the case with a dermoid cyst of the ovary. Second, because it shows nicely the so-called *Kopfhöcker* in its early development. *Kopfhöcker* is that substance of the dermoid cyst which, like a wart, hard in consistence, projects into the cyst and is histologically composed of various tissues; its basis is formed from ovarian tissue and its surface covered with pavement epithelium. The Wilms theory, according to which the dermoid of the ovary is to be considered a parasite, seems to be universally accepted.

A section throughout this specimen shows the following:

1. Hard skin.
2. Hair follicles and sudoriferous glands.
3. In cutis numerous non-striated muscle fibres.

Subcutis:

- (a) Fat.
- (b) Cartilaginous or osseous lamellæ traversing the *Kopfhöcker*.

In the deeper layers.

- (a) Cystic cavities with ciliated epithelium, and wall consisting of non-striated muscle fibres and cartilaginous structures with mucous salivary glands. Just like trachea.
- (b) Cysts with villi, columnar epithelium, lymphatic structure, and a ring of non-striated muscle fibres, similar to intestinal tract.
- (c) Other structures, salivary glands, and thyroid gland.

All this proves the origin of an ovum or *Ureizelle*.

But the fact that these cystic formations communicate with the main cavity of the site of the *Kopfhöcker*, which is vested

with buccal mucous membrane (*Mundbucht*), earned the name of head nodule, or *Kopfhöcker*, for this part of the parasite.

VI. OVARIAN STONE.

Two ovaries with large cavities, each containing black stones, the size of a small walnut, and pus, from a patient 57 years of age who had never been pregnant or suffered with any disease previous to about four months and a half ago. While on a pleasure trip to Europe she took sick at Stuttgart and was treated for gastrointestinal catarrh for a period of about three months and a half in a private hospital. Her condition growing steadily worse, and symptoms of increasing intestinal obstruction presenting themselves, an examination under chloroform was made by the attending doctor and a skiagram was taken. The latter showed a black spot in the lower abdomen. Cancer of the rectum was diagnosed and an operation proposed, which the patient, however, refused, as the prognosis was not encouraging. She



FIG. 4.—Ovarian stone—ovary cut open, showing stone *in situ*.

then left the hospital and accomplished under great difficulties her trip from Europe to America, and arrived in a very emaciated condition in Chicago a few days previous to the operation. This is the time when I saw the patient, who was then suffering greatly with pain all over her abdomen and belching gas with fecal odor. There had been hardly any bowel movement for days, in spite of repeated administration of cathartics and enemas, which latter seemed to prostrate the patient for hours. On examination of the abdomen I found a hard mass about half-way between the umbilicus and symphysis, extending on both sides toward the ovarian regions and downward. Vaginal and rectal examination showed that this mass extended to the cul-de-sac, encircling the rectum and filling out the whole lesser pelvis, while the rectum itself admitted only with difficulty the little finger for a very short distance. Vaginally one could feel on both sides in the ovarian region soft areas.

Diagnosis, old ovarian abscess with parametritic exudate and

partial fibrous degeneration extending to the rectum, encircling and partially occluding it. Two days later I removed the mass through a celiotomy opening. First we dissected the part situated in the cul-de-sac and found it to consist of large exudate masses around both of the ovaries which contained black stones and pus. The stones were about the size of small walnuts and undoubtedly old indurated hematomata. Their existence accounted, perhaps, for the black spots which are supposed to have been found on the skiagram. Then we removed piecemeal the hard masses which surrounded the whole rectum and sigmoid up to the colon, after which the lumen of the bowel in question was examined with heavy rectal bougies, affirming as to its

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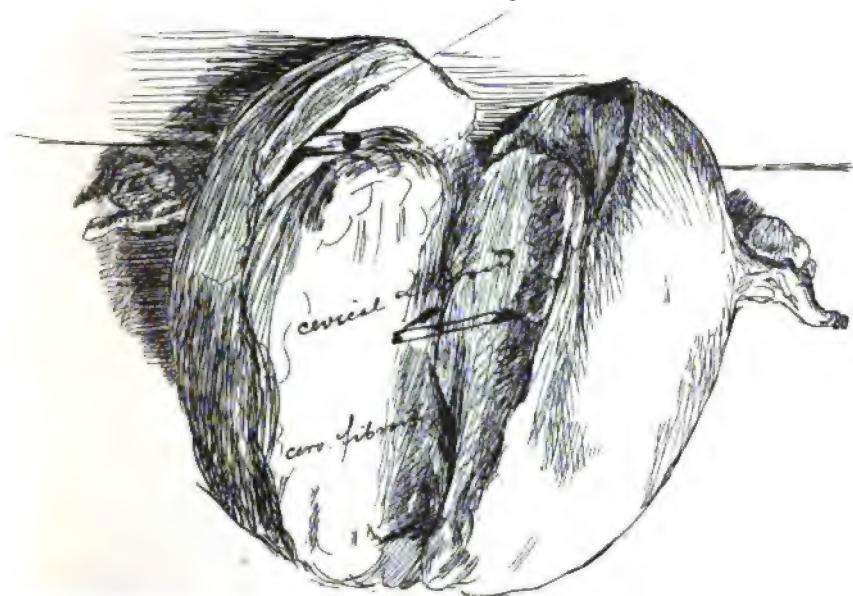


FIG. 5.—Fibroma of posterior lip of cervix. C. cavity of uterus.

patency. We could now easily and freely pass the bougie its whole length, consequently the occlusion of the lower bowel was perfectly relieved. Packing around the denuded sections of the bowel and upon the raw surfaces of the cul-de-sac, ovarian and tubal regions, insertion of a thumb-thick rubber-tube drain leading from the abdominal incision through an opening behind the cervix into the vagina, and the uterus held in position to the abdominal wall, concluded the operation. Patient is making an uneventful recovery.

VII. FIBROMA OF POSTERIOR LIP OF CERVIX EXTENDING INTO THE POSTERIOR PART OF FUNDUS.

This specimen is from a patient 45 years of age who gave birth to five children and had been treated for diabetes by her family

physician during the last four years on account of frequent micturition. During the last five months frequent and protracted hemorrhages from the uterus emaciated her greatly. Hemoglobin 35 per cent; urine normal. Dr. De Lee and I concurred in the diagnosis of a fibromyoma of the uterus, in spite of the very uniform tumor seemingly involving the whole uterus and soft places in some parts, which allowed some doubt as to the possibility of coexisting pregnancy, although fetal heart tones and bruit were absent. The operation presented nothing of special interest. The patient made a rapid recovery. The specimen represents a tumor the size of a child's head, and is of interest as tumors of this size develop but very rarely from the posterior lip of the cervix. Dr. Christian Fenger, when reporting a similar case two years ago to the Society, could collect only two such cases from the literature. Very characteristic is the flattened condition of the anterior part of the uterus, which retains its normal length and thickness; also the uterine canal stretched over the fibroid mass, which crowded its way toward the lumen of the canal, thus causing atrophy of the posterior wall of the uterus, which is replaced by the fibroid tissue, leaving a mere layer of the mucous membrane of the canal to cover it.

DR. RUDOLPH W. HOLMES.—Dr. Wagner showed me the specimen of total hysterectomy with the fetus and amniotic sac removed intact. I questioned if the fetus had been dead more than a few hours, or at most two days. That part of the fetus visible through the post-operative incision into the uterus shows no signs of maceration. It seems to me, if the fetus had been dead twenty-four hours, or at most forty-eight hours, with the described offensiveness of the liquor amnii, there would be signs of beginning maceration. Boldt, in THE AMERICAN JOURNAL OF OBSTETRICS for 1898, recommended the operation which Dr. Wagner has carried out, but thus far I have seen no report of an operator who had removed at term the uterus intact with the fetus *in situ*.

DR. JUNIUS C. HOAG.—I have found a great deal of misapprehension regarding the length of time required to produce extensive maceration after the death of the child *in utero*. I have satisfied myself that extensive changes may take place so rapidly that a fetus, which may have been supposed to have been dead *in utero* for two or three weeks, might in point of fact have only been dead a very few days.

DR. WAGNER (closing the discussion).—In regard to the length of time after death of the child, I wish to say that about six weeks previous to the operation the woman had severe chills and vomiting, which repeated themselves up to the time of the operation. I only saw her two days prior to the operation. There were no fetal heart tones. At the time I opened the uterus, after the operation, to determine the nature of the contents, the odor of the liquor amnii was quite offensive.

I take great pleasure in thanking Dr. Geiger and Mr. Marce

for their work in drawing the cuts, and Dr. R. H. Herbst for his valuable co-operation in most of the operations reported.

DR. BERTHA VAN HOUSEN (by invitation) reported a case of
SARCOMATOUS DEGENERATION IN A UTERINE MYOMA.

Mrs. S. J. T., aged 49, married, housewife, American; no diseases of importance either as a child or adult; menstruation began at 14, always irregular and painful until after the birth of her first child; flow otherwise normal; married at 19 and first child born at 21 years of age; the last child born at the age of 35; two children between these two, making in all four children; no miscarriages.

After the birth of the last child she had convulsions lasting fifteen hours and was an invalid for one year. During the pregnancy of this last child she was an invalid most of the time with symptoms pointing to nephritis.

History of the Present Sickness.—Ever since the birth of the last child, fifteen years ago, has had pain and tenderness in the pelvis, but never had called a physician for any pelvic trouble until September, 1902. Four years ago she noticed that the menstrual flow was increased in amount, clotted, and appeared a few days earlier than usual. During the past two years the flow has amounted every month to a hemorrhage, and for the past year and a half she has never passed a day without a show of blood. During the past eight months the flow has been constant, with occasional exacerbations at the menstrual period which amounted to hemorrhages. No fetid odor was ever noticed, though at times the discharge seemed almost watery. Ten weeks ago she gave up work on account of the severity of the hemorrhage and has not been out of bed until a week ago. The day after she was obliged to go to bed she was seized with excruciating pain in the left side, so that relief could not be obtained without the administration of morphine. Before this time she had never suffered any actual pain other than tenderness in the lower part of the abdomen, but she complained bitterly ever since the hemorrhages began, four years ago, of intense nervousness, heat sensations, and sleeplessness, which she describes as worse than actual pain.

September 23 I first saw the patient with Dr. Susanne Horton, under whose care she had been for the past week. I found her intensely anemic and with every appearance of a patient with advanced carcinoma. After listening to the above history I made a vaginal examination, found the cervix dilated but no sign of degeneration, and a large mass filling up the entire pelvis. The mass seemed to be entirely connected with the uterus, extending half-way up to the umbilicus. The tenderness was so great on the left side of the abdomen that palpation could not be practised. Palpation on the right side revealed a nodular growth which I supposed to be a uterine myoma. The discharge was thin, bloody, but had no odor. She was advised of the seri-

ousness of her condition and decided to go to the hospital September 25. From September 25 till November 1, when she left hospital, a daily record has been kept of her condition.

When she entered the hospital her pulse was 102, temperature 99.8°, respiration 24. The next evening her pulse had dropped to 86 and temperature to 98.6°. She had been put upon strychnia one-thirtieth grain every four hours, liquid diet, and cold flushes daily, one per cent carbolic douche, two gallons nightly and morning. Examination of the urine at this time indicated normal condition of the kidneys.

September 27 temperature began to rise. On the 28th it reached 101.8° and remained above 100° minimum, 101.8° maximum, until October 5. During this period it became necessary to pack the vagina to restrain the hemorrhage, and the patient's stomach was so disturbed that she was nauseated or vomited every day.

From October 5 until October 14 patient seemed to improve, pulse remaining in the 90's and temperature ranging from 98.6° to 100.6°. October 13 patient complained of symptoms that led me to think she was going to have another period of disturbance of stomach and elevated pulse and temperature.

We decided upon operative measures, and on October 14, after the usual preparations for a major operation, patient was anesthetized, and with the assistance of Dr. Wood, senior internist of the Woman's Hospital, and Dr. Susanne Horton and Dr. Blalock, anesthesiologist, I performed a panhysterectomy by the combined abdominal and vaginal incision. The patient became pulseless soon after the abdominal incision was made, and normal salt solution, with strychnia one-thirtieth grain and digitalis ten minims, was begun and continued during the operation. At the close of the operation, before the patient gained consciousness, two quarts of normal salt solution were thrown into the colon and retained. Pulse before the operation 92, temperature 99.2°, respiration 24. On returning from the operating room two hours after the operation pulse was 116, temperature 98.6°, respiration 27. In order to hurry the operation no ligatures were used, clamps being placed on the broad ligaments and the abdominal incision closed as they had been placed. The growth was removed in two parts, also for the purpose of hurrying the operation. Clamps were placed on the uterine and ovarian arteries and the growth was taken down to the internal os and removed. The patient was then placed in the lithotomy position, incision made around the vulva, anterior and posterior vaginal cul-de-sac opened, and permanent clamps placed on the broad ligaments before removing the temporary clamps placed above for controlling the hemorrhage.

The after-treatment consisted of the Byford treatment for major peritoneal operations. The pulse ranged from 112 to 120 during the first week and temperature from 99° to 102°.

Thirteen days after the operation the pulse was 88, temperature 99°, respiration 24, and from that time on the patient

made a steady gain and was able to leave the hospital in an ambulance on the nineteenth day after the operation. She is now able to walk, has had no pain since the operation, and is an operative success.

The great difficulty we encountered after the operation was in the matter of stimulation. Strychnia was administered hypodermatically, one-sixtieth to one-thirtieth grain every one to three hours as indicated. Bowels were kept open with milk of magnesia, Hunyadi, and calomel. Fourteen pints of normal salt solution were administered subcutaneously and by the colon during the first week. The alimentation during this time was mainly by rectal enemata containing Valentine's Beef Juice and water, peptonized milk, beef extract and water, white of egg, peptonized milk and coffee, liquid peptonoids, matzoon. The amount of nourishment that was administered in this way was great.

An examination of the blood was made one week after the operation and the hemoglobin was estimated as twenty-five per cent. She lost very little blood during the operation, and I believe that the count, if made before the operation, would have been the same or even less. In spite of the intense anemia, the pulse was always of very fair quality and never assumed an alarming character during her convalescence. In 1898 I operated upon a patient at Wesley Hospital with inversion of the uterus, performing a hysterectomy. The patient's hemoglobin before the operation was nineteen per cent. It would seem, from these two cases at least, that intense anemia is not always a serious obstacle to the performance of major operations.

Report on material sent by Dr. Van Hoosen October 21, from case of Mrs. T.—"Uterus measures 16 by 14 by 8 centimetres. Cavity of uterus is 6 by 2 centimetres. A small nodular mass projects into this cavity. There are small nodules on the surface of the uterus. The growth on the left lateral wall of the uterus is an easily broken mass, not encapsulated, measuring 10 by 6 centimetres. Left ovary in place and slightly enlarged.

"*Microscopic Examination.*—A section from one of the small nodules shows this growth to be a fibromyoma. A section from the mass on the left lateral wall of the fundus shows a mixed-cell sarcoma, with spindle-cell elements predominating. There are polynuclear cells and a number of cells undergoing mitotic division. There is marked hyaline degeneration of the blood vessels. A section from the margin of this growth shows the change from a fibromyoma into sarcomatous elements. The long, spindle-shaped muscle cell, with its rod-like nucleus, is changed into an oval cell with round or spindle nucleus, often very granular. Mitotic figures are also seen. The nodule in the uterine cavity presents the same picture, that is, the change of the muscle elements of a fibromyoma into sarcomatous elements. Sections from other parts of the endometrium and the cervix show no involvement. There is a small metastatic growth in the ovary—a myxomatous patch in which is seen the mixed-cell sarcoma tissue, identical with the uterine growth."

DR. MAXIMILIAN HERZOG.—If I understood Dr. Van H. correctly, she stated as the opinion of Rokitansky and Virchow that most sarcomata found in the uterus are secondary to myomata. In other words, most of the sarcomata found in the uterus are nothing but sarcomatous degeneration of myomata. It may be that this is the statement of Virchow and of Rokitansky; I do not recall it now. These older statements should be taken with a good deal of caution. Sarcoma of the uterus occurs, as a rule, as a primary tumor arising from the mucous membrane. During the last five or six years I have seen three cases of primary sarcoma of the uterus. I have, however, seen only one case of sarcoma secondary to a myoma.

DR. JUNIUS C. HOAG.—I would inquire of Dr. Van H. with regard to the amount of salt infusion that was used, how much was used subcutaneously, how much by the rectum, and what the immediate results were.

DR. VAN HOUSEN (closing the discussion).—With reference to the remarks of Dr. Herzog, I will say that Virchow and Rokitansky had reference to sarcoma of the parenchyma, and not to sarcomata. I think this question is very hazy. I found no cases in the literature where there was sarcoma with myofibroma or sarcoma connected with myofibroma in any way whatever. I felt, from the history of my case, that the myofibroma was secondary to the sarcoma. In the specimens some of the cells are degenerated.

In regard to salt solution, I think about half of it was used subcutaneously and about half by the rectum. I believe the results were just as good where we gave the salt solution by the rectum, except they were not quite as quick. We got fuller of the pulse more quickly where we used the salt solution subcutaneously, but where it was not immediately necessary we gave it by the rectum.

(To be continued.)

TRANSACTIONS OF THE SECTION ON GYNECOLOGY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, December 18, 1902

The President, GEORGE ERETY SHOEMAKER, M.D., in the Chair

DR. JOHN C. DA COSTA presented

CLINICAL NOTES ON (a) SOME UTERINE FIBROMATA; (b) DYSPLASIA OF VAGINA AND UTERUS; (c) CELIOTOMY DURING PREGNANCY AND (d) SOME MISTAKES IN DIAGNOSIS.

Believing that unusual cases may be of some interest and that we sometimes learn much from our own and others' mistakes

present these specimens and histories of cases to the Section, omitting the pathology, long tedious histories, and temperature charts, and condensing what is to be said into the fewest words sufficient to make the description intelligible.

Uterine Fibroids.—These cases are presented, not because uterine fibroids are uncommon, for they are not, but rather because of the peculiarity of their growth in the examples under discussion.

The first is that of J. M., æt. 43, who was brought to me from the interior of Pennsylvania. The growth was subperitoneal, arising from the anterior and exterior wall of the neck of the uterus, and in its growth had pushed up the peritoneum before it and turned the uterus itself upside down, forcing it downward so as to fill the pelvis, and thus producing all the abdominal symptoms incident to such a growth. The hemorrhage after the removal of the tumor was so great that, as the woman was approaching the menopause, I removed the uterus also. The woman did well after operation, and in ten days the stitches were taken out, showing apparently perfect union from end to end of the wound, which had healed nicely. Some hours after, from some unknown cause, a violent attack of vomiting set in, the whole wound burst open from end to end, and some eight or ten feet of intestine protruded. These were washed with salt solution and returned, and parts held together with temporary sutures of silkworm gut. Two hours after this I operated to close the wound by freshening up the edges, which seemed perfectly healthy and raw. She made, after this, a tedious recovery, but went home well, and at last accounts was still so.

The next specimen is one removed from the top of the uterus and in its growth had pulled up the tubes and ovaries with it. It has been cut open and shows very clearly the capsule covering it, which on fresh section could be stripped off as readily as the skin from an orange. It was removed, as stated, from the fundus of the uterus, and the large raw surface of the uterus closed with sutures, and peritoneum drawn over it.

The third is like the second, except that, instead of being smooth like a ball, it is studded with nodules. Both women made uninterrupted recoveries.

Double Vagina and Uterus.—M. J., from New Jersey, æt. 22. Only symptom was dysmenorrhea. Examination showed a double vagina with thick septum reaching from vulva to, and coalescing with, the septum between the two uteri. The latter each had a separate cervix and corpus uteri, the left one larger than the right, and with a deep depression between them reaching to the point where the two cervices coalesced. Operation was done by entirely cutting away the septum in the vagina up to the cervices. Patient went home with all bad symptoms cured.

Celiotomy During Pregnancy.—These cases are reported to emphasize what I have often stated, that I believe celiotomy during pregnancy is, when needed and under proper precautions, a

safe operation. Dr. Bovée, of Washington, some eighteen months or so ago, reported two cases and, from what I remember, them as unusual. Five and a half years ago I reported cases at the meeting of this Section,¹ operated on April 20, and one some three years before that date. Both these went to full term. I have had a few since that date, but cannot just now fix the dates. Dr. Noble told me two weeks ago he had operated on about ten. The history of the first case follows: M. B., æt. 37, from New Jersey. This patient stated that her doctor said "she had procidentia uteri and irregular bleedings from a pregnant uterus." Her own statement was that seven years ago she had prolapsus uteri after the birth of her first child; and after the birth of her second child she used a rubber pessary until the birth of her last child, two years ago. Apparently she was perfectly well until a month ago, while working in the fields with a hoe and plow, the old trouble returned. For the last two weeks she has complained of frequent and painful micturition, sometimes as often as six times an hour, of occasional hematuria, of dull, heavy, aching pain in the right lumbar region, and of obstinate constipation.

Examination showed a slightly prolapsed cervix, easily placed, with a retroflexed adherent pregnant uterus without signs of bleeding from the cervix. Vagina healthy. On passing the finger, however, along the line of urethra a full teaspoonful of blood was milked out.

Two days after this examination I opened the abdomen by getting down to the peritoneum it was raised with two pairs of forceps and an opening made in it; the incision was about an inch and a half to four inches above the pubis, and I found the peritoneum was opened; the latter was firmly attached to the uterus and had been pulled up by the retroflexed womb. The base and neck of the bladder were covered with a thick fibroid growth three inches long and an inch and a quarter wide. As the woman was pregnant, it was not deemed advisable to do a radical operation on the bladder, so the opening was closed, the adhesions of uterus broken up, the uterus released and returned to its normal position, and the abdomen closed. Recovery was uneventful, and in about a half weeks she was discharged with the uterus large and increased in size and her bladder trouble about gone, the hematuria stopped, and the only discomforts remaining being incident to pregnancy.

The next case, R. S., æt. 26, also from New Jersey, is a good illustration of retroflexed adherent pregnant uterus, with the usual symptoms attending this condition. The abdomen was opened, the adhesions, which were particularly dense in the right iliac fossa, broken up, and the abdomen closed. The patient had no after-symptoms and went home apparently well.

My previous cases have gone on after operation to full term and I trust these will do as well.

¹AMERICAN JOURNAL OF OBSTETRICS, vol. xxxvi., No. 3.

Mistakes in Diagnosis.—Distended bladder mistaken for ovarian cyst. We are all of us likely to make mistakes in diagnosis, but, if observant, we may learn much from these very mistakes. The following cases will show how some of us are deceived.

Mrs. J. M., æt. 43, was brought to me by her doctor with the statement from him that "she had an ovarian tumor, as I could see by examining the abdomen." He stated that "there was no trouble with the urine, which she passed easily, but there was severe constipation and pain from the growth of tumor." On examining the abdomen I found an oval tumor in the middle line, dull on percussion, with a clear note in the flanks. A catheter brought away sixty ounces of urine, and two hours later twenty ounces more, and the tumor disappeared. On vaginal examination the cervix could not be reached, and the pelvis was filled with a dense, firm growth which proved to be a large fibroid pulling up the cervix and by pressure on the urethra producing "incontinence of retention," as it was termed by Gross, and by pressure on the rectum obstinate constipation. Hysterectomy. The patient made a good recovery and regained perfect control over her bladder and bowel.

Sacro-iliac disease mistaken for cellulitis. The case which I would cite is one that shows how careful we should be in our diagnoses, and how, in spite of the greatest care, practitioners may sometimes be led astray. The patient of whom I speak had been operated upon per vaginam for pelvic cellulitis some weeks before, by one whom I know to be a very able gynecologist, an expert operator, and a careful and accurate diagnostician. She had previously (some six weeks before the operation) had an accidental miscarriage at six months, at her home some two hundred or more miles away. This accident, she stated, was followed by retention of urine and by hematuria and shooting pains in the region of the left kidney, and two weeks later she developed what was alleged to have been pneumonia.

The patient had been operated on by vaginal incision and drainage some weeks before, but no pus was found, and she went home shortly afterward much improved. She returned to the city some weeks later and came under my care. She presented the symptoms of pelvic cellulitis, the whole pelvis being filled with a boggy mass, but no fluctuation could be perceived nor evidence of localized pus found. She had at this time acute pain in the left hip joint, with wasting and flexion of the left leg upon the thigh and of the left thigh upon the pelvis. There was also muscular rigidity, which the patient said had existed since the previous operation. Her temperature and general condition indicated pus, but no localized spot nor fluctuation could be found for some little while, until she suddenly developed a swelling upon the left side in front of the erector spinæ mass and back of the anterior superior spine of the ilium. This swelling increased so rapidly in size that in three days it attained a size of about three and one-half inches diameter and an elevation

of one to one and one-half inches above the adjoining surface. then operated, and cut down for a depth of two inches with finding pus, and then, tearing with my fingers, a pocket containing nearly a pint of purulent material was emptied. The cavity thus formed was scrubbed out with gauze, the eroded bled and curetted, and a counter opening for drainage was made at a point in the centre of Poupart's ligament. A large rubber drainage tube was introduced, through which the cavity was washed out daily.

The patient's temperature, which had ranged daily from 98.5° to 103.5° before this operation, fell steadily day by day and within four days reached normal, at which point it remained. The pain disappeared, and the leg, under treatment by massage and exercise, straightened and increased in size, and patient went home well. The following tabulation shows the remarkable rapid improvement in the condition of the patient's blood after operation:

| | One day before operation. | Five days after operation. |
|-----------------------|---------------------------|----------------------------|
| Red corpuscles..... | 2,810,000 cu. mm. | 3,780,000 cu. mm. |
| White corpuscles..... | 18,400 " " | 6,000 " " |
| Color index..... | 0.71 | 0.85 |

DR. J. M. BALDY.—Regarding celiotomy during pregnancy, I do not infrequently see a paper on the subject which leads us to think the operation is exceedingly rare and difficult. My experience has been much that of Dr. Da Costa. Some years ago I read a paper before the Obstetrical Society reporting four cases. The worst one was a case of tubal and ovarian abscess with an abscess, probably the size of a five-cent piece, in the cornu of the uterus. After removing both appendages the abscess was cut open, curetted, and packed with gauze; the pregnancy continued without difficulty and the child was born at term. I have had three cases within the last year or eighteen months. I have several namesakes around the country of children born after operation during pregnancy. In the last I did a myomectomy and removed a large fibroid tumor from the uterus and stitched the uterus up. The pregnancy had advanced four months at that time. I have adopted a uniform plan of treatment. Immediately after operation every patient is put under the influence of opium until there is not the slightest tendency to uterine contraction. The opium is given hypodermatically in quarter-grain doses until the patient is narcotized, and then is kept in this condition. I have never seen a case in which the child was affected by the morphia. Suppositories of opium are used for the same purpose. Pregnancy would be a contraindication for operation, if I thought that at that time operation was required. I do not mean I would not wait until the pregnancy was over, if the case were one in which operation could wait; but I would not wait simply on account of the pregnancy, if operation were called for.

There seems to be something wrong with Jersey in regard

these uterine deformities Dr. Da Costa mentions. The last three or four cases I can recall were on the other side of the river. The last one had a total lack of ovaries, uterus, and vagina.

DR. GEORGE ERETY SHOEMAKER.—The Chair would comment on the case in which the stitches were removed on the tenth day and in which vomiting induced separation of the entire wound. It seems to me that that is an additional argument for the use of the buried suture. Also, it forms one of quite a large group of reported cases in which when the stitches are removed comparatively early the wound bursts open. It shows how really weak the wound is in ten days. Some operators remove all abdominal stitches as early as the eighth day. But because of the reports of occasional accidents such as that reported, I make it a rule to remove the stitches not earlier than the twelfth day, unless they are cutting, and to reinforce all wounds, no matter whether the through-and-through sutures are used or not, with the layer suture. Dr. Da Costa deserves our thanks for the report of the accident, which is instructive to all of us, while not due to any fault of his. It throws a suggestive light upon the practice of some operators—not that of Dr. Da Costa—of allowing patients to walk about ten or twelve days after abdominal section.

DR. H. D. BEYEA.—I would like to ask Dr. Da Costa if the vomiting was very severe in this case, in his opinion sufficiently severe to be the only cause of the separation of the wound. It is my custom to close the abdomen in all cases by the layer method—the peritoneum and fascia with catgut and the skin with silk. No mass sutures are employed. We have demonstrated that this catgut we use is absorbed at the end of four or five days. We have never had a wound separate as in the case described by Dr. Da Costa. Therefore, it would seem to me that there must be some other cause for the separation than the removal of the sutures at the end of ten days.

DR. SHOEMAKER (to Dr. Beyea).—Did you ever test the catgut entirely beneath the skin? Catgut is cut off more rapidly at the point where it passes through the superficial layers of the skin than it is elsewhere.

DR. H. D. BEYEA.—I have.

DR. DA COSTA (closing).—In regard to what Dr. Baldy said about opium, I also have operated for abscess in pregnant women, and my rule, like his, is after the operation to put them under opium, but I do not use morphia. In about one case in six morphia produces nausea, sometimes uncontrollable, lasting twenty-four to forty-eight hours. I use after the operation solid opium suppositories in sufficient quantity to keep the uterus quiet until the tendency to abort has disappeared. The wound in this case was closed with three tiers of sutures, chromicized catgut for peritoneum, and for closing fascia and muscles; the third, of silver wire, goes through skin, fat, fascia, and muscles,

but not through peritoneum. This last is the only one removed. I did not have the No. 2 catgut and used the No. 3. I found it in the vagina, exposed to continuous secretions, catgut is usually unchanged in fourteen days and gone in eighteen days. Some reason unknown produced the terrible attack of vomiting which tore open the wound.

I have not used a binder in any of my cases for some years. I rarely take out the stitches in as few as five days, seldom in six. Sometimes they are left as long as four weeks. This depends upon the condition of the wound. If the wound does well I do not look at the wound for ten days after closure. I close it with catgut for the peritoneum, muscles, and fascia, and then with silver wire. For four or five years I have covered the wounds with silver foil. When the silver-wire stitches are taken out I use a zinc plaster to strap with. It does not irritate and holds well. I do not use binders because of the great difficulty in having them fit. If the patient is measured when lying in bed, the binder does not fit when she is standing. Strips of plaster, not over eight or ten inches long, are used, leaving space between the strips. In these spaces are put other strips after a week, and they are so changed once a week. Since using this method no one has returned with hernia.

DR. SHOEMAKER.—I did not intend to criticise Dr. Da Costa's method of suturing the wound. My remarks were rather a comment upon the comparative weakness of all wounds after an interval of ten days. I think the case illustrates the fact that even when a wound is sewed up as thoroughly as was Dr. Costa's, this accident may occur, and has occurred in a number of reported cases.

DR. DA COSTA.—I did not understand Dr. Shoemaker's words to be a criticism.

DR. J. M. BALDY reported

EXTRAUTERINE PREGNANCY TWICE IN THE SAME PATIENT WITHIN ONE YEAR.

R. S., aged 26 years, was admitted to the Pennsylvania Hospital December 14, 1901, with symptoms of extrauterine pregnancy. Two nights before admission she had fainted while taking a bath and had sharp pains in the lower part of the abdomen. The next day the pains returned with redoubled force and she was found on admission to the ward to be in collapse. The skin and mucous membrane were as pale as could be, her face was pinched, and her pulse 130 to 140 to the minute. Her previous history, which was that of pregnancy in a collapsed condition, together with a pelvic mass, made the diagnosis of ectopic pregnancy easy. The blood examination showed the hemoglobin to be 30 per cent, leucocytes 26,000. An operation disclosed an abdomen full of free blood, with the bleeding still going on from the rupture of a left-sided ectopic sac. The patient was returned to bed in twenty minutes and transfused.

of salt solution made freely under the breasts. The woman rallied slowly from her low condition and made a good surgical convalescence at the end of three days, although, of course, she was in an extremely enfeebled condition from the loss of blood.

At the end of a week she began to complain of soreness in the left side in the region of the puncture points of the transfusion needle. An examination disclosed a gradually spreading cellulitis which it was necessary to incise and drain. The chest not progressing satisfactorily ten days or so later, free incision in the chest became necessary, and the cartilage of the eighth rib, being necrosed, was resected. A slow, tedious convalescence followed and the woman did not leave the hospital for almost three months. At the beginning of the cellulitis the leucocytes counted 15,900; the hemoglobin had risen to 70 per cent. At no time during the suppuration did the leucocytes count more than 16,000. I note in passing that the hemorrhage of the original rupture gave a count of 26,000 white blood corpuscles. How the blood examination was of the slightest aid in this case is beyond my comprehension.

The laboratory puts the point of hemoglobin at which we dare not operate at 30 per cent. I note in this case that it was 30 per cent. I would remark in this connection that the per cent of hemoglobin is of no importance, be it 30 per cent or 20 per cent, or even lower—the general condition of the patient and the emergency to be met is the safe thing for the practical surgeon to follow. Practice fails to bear out the laboratory in these two matters, leucocytosis and percentage of hemoglobin.

On November 13, 1902, this same woman was brought to me at the Polyclinic Hospital with the history of having been perfectly well since her first operation until the present time. She was now suffering from the symptoms of pregnancy, which her doctor thought to be of the ectopic variety. She gave a clean history of pregnancy, a history of sharp abdominal pains the past few days, and an examination disclosed a tender abdomen with a boggy mass to the right of the uterus. An operation followed at once, with the result that an ectopic sac was removed from the right side. Rupture had taken place, only this time it was confined by adhesions and had not yet ruptured into the free cavity. Both pregnancies were about two months advanced. The woman returned home well at the end of three weeks. The operation was done so quickly that no blood examination was made. I record the case because of the rarity of a second ectopic pregnancy in the same woman and the shortness of the interval between the conceptions (eleven months).

DR. JOHN B. SHOBER.—I think Dr. Baldy is to be congratulated on the outcome of his case, for it is unusual twenty-four hours after rupture of ectopic pregnancy, with active hemorrhage and with the hemoglobin at 30 per cent, to have the patient recover. The use of a large quantity of normal salt solution by hypodermoclysis probably saved her life. It would

seem that the cellulitis which developed in the chest wall was the result of infection transmitted during or after hypodermoclysis. Of course such accidents occasionally happen in spite of the most careful measures, which doubtless were exercised in this instance. I am quite sure, however, that the technique is often very faulty, and the reason the complication seldom occurs is because of the great dilution and rapid absorption. Its preparation and performance are too often entrusted to inexperienced hands. The presence of a greatly increased leucocytosis associated with a large internal hemorrhage, twenty-four hours after rupture, is readily explained, as is also the smaller degree noted during the suppurative stage of the cellulitis.

I quite agree with Dr. Baldy that the presence or absence of leucocytosis is a very uncertain guide, when we consider the symptom alone, and experience seems to show that it will frequently lead us astray. We should regard it merely as a factor in the symptom complex of doubtful cases. I have learned to value it as a guide in the initial stages of acute cases, when beginning suppuration is suspected. Its absence, however, in the later stages of appendicitis or of pelvic inflammatory disease, is no sign that pus is not present or that operation is not indicated.

DR. JOHN C. DA COSTA.—Last year I was compelled to operate upon a woman whose hemoglobin was only 25 per cent. I had waited for some days, but finally operated with that percentage. I was sure she would die if not operated on. I operated and she recovered. This summer I did an operation upon the whitest woman I have ever seen—her lips were as white as her cheeks and the hemoglobin count was 10 per cent. She bore ethically beautifully and made a good recovery. While it is very well to fix a rate beyond which or below which we ought not generally to operate, we sometimes have to set all rules aside. In regard to leucocytosis, if I understand Dr. Baldy, this hemorrhage was encapsulated. Under such circumstances, ordinarily the leucocytosis comes down.

DR. H. D. BEYEA.—It would seem to me that the leucocytosis in this case might easily be explained by the presence of a collection of blood clot undergoing chemical change. The presence of such blood and the chemical product being absorbed or as an irritant I can appreciate would produce a leucocytosis. After the absorption of the blood clot was complete the leucocytosis would naturally disappear.

DR. W. R. NICHOLSON.—The question of infection, so called following hypodermoclysis has particularly interested me. It does not seem to me that that explains the production of the condition. Dr. Baldy noted, because the tissues of the woman were in such condition that a degree of infection that in an ordinary woman would have been perfectly harmless, which infection likewise occurs in every case in which the hypodermoclysis needle is inserted, would be in this woman, almost exsanguinated, very serious. I remember a case in my service in the Maternity Hospital

of a woman in a very profoundly anemic condition treated by normal saline solutions. Large quantities were given and she developed large abscesses. They were given by the resident several times, and did not happen to have been given by the nurses. In another hospital the hypodermoclysis is given by the nurses with absolutely no bad results. It does not seem to me, from that, that this was a case of preventable infection. The general condition of the women I think is the important point in considering the infection.

DR. JOHN B. SHOBER.—In my experience the majority of cases requiring hypodermoclysis are and have been for a long time in a very poor state of health, and therefore, as I said before, it is surprising that infection occurs so seldom. While not wishing to criticise the case under consideration, I believe that, as a rule, when suppuration does occur it is due to infection transmitted at the time or during the after-care of the puncture wounds. It therefore behooves us to see to it that every precaution is taken and that the performance of this life-saving measure shall be entrusted only to experienced hands.

DR. W. A. N. DORLAND.—Repeated ectopic pregnancy is probably one of the rarest manifestations of extrauterine pregnancy, though not so rare as combined intrauterine and extrauterine pregnancy, and certainly not so rare as Dr. Krusen's recent case of triplets in a Fallopian tube. If I am correct there have been but three cases of repeated extrauterine pregnancy reported in Philadelphia. One was in the service of Dr. Baer, the second pregnancy being operated upon by me; one was reported by Dr. Sprengel, and this case by Dr. Baldy. Schoolfield has recently reported two cases of repeated ectopic pregnancy, and Ross, of Toronto, two cases. Recently Varnier, of France, from a study of the literature has collected about one hundred cases of this condition; of these not more than six occurred in this country. In none of the cases did the pregnancies occur sooner than from fourteen to sixteen months apart. In this respect Dr. Baldy's case is of special interest.

DR. GEORGE ERETY SHOEMAKER.—The matter of the white-cell count is an interesting one, because the observations on leucocytosis in extrauterine pregnancy with intra-abdominal hemorrhage are not very abundant. It is unfortunate that the observation was not made in the second case. There is no doubt, however, that the introduction of a large amount of blood into the peritoneal cavity is irritating to the peritoneum, and if sufficient time is given it often produces a form of peritonitis which encapsulates the blood. This had not occurred in this case, but we are not in position to exclude a certain amount of extensive peritoneal irritation which may have had an influence in this high leucocytosis. Then we must admit a large personal equation in the microscopist and the possibility of error in his observation. It is only another illustration of the fact that the blood count is simply one item in making up our diagnosis, and by itself not a reliable guide to operation ordinarily.

Dr. BALDY (closing).—A word in regard to the rarity of the condition. Dr. Mann, who is in the city at this time, has had the only case that I know of on record in which at the time of operation there was found an extrauterine pregnancy in each of the tubes. There are a number like mine.

I think Dr. Nicholson is right in regard to a suppuration in this particular case. In the Pennsylvania Hospital the hypodermoclysis is largely done by the nurses. The chief resident physician, who has been there for a number of years, says this is the only case he has known to occur. I only cite this to show that hypodermoclysis is usually carried out with the utmost care, and yet, in spite of this, infection occurred in this case. It is a clean-cut argument for laboratory men in favor of one of the dangers of low-grade hemoglobin, showing a lack of resisting power. With a hemoglobin of 30 per cent I am not surprised that there was cellulitis. As Dr. Da Costa says, no one will select a patient with a hemoglobin of 30 per cent for operation, but if the case calls for operation I do not see that 30 per cent of hemoglobin is a contraindication. I have operated in several cases in which the percentage was down in the twenties. The records are all from the Pennsylvania Hospital and are all correctly made. I oftentimes question pathological reports on account of the men who make them. The ordinary observations made by the resident is of no possible value. It is impossible that a resident physician in a hospital should know enough to make an unquestionable report when pathologists of the most expert reputation differ. It is nonsense for us to talk about pathological reports from such sources. For scientific accuracy they are entirely beyond the pale.

There is no question whatever but that hemorrhage will give leucocytosis. All clinicians will recognize that. Sometimes it will occur from a small amount of blood, and sometimes it will not occur with an excessive amount of blood.

Here is a method of diagnosis that we are asked to place a certain amount of dependence upon in suppuration. It is the practical experience, however, of clinicians who have used it that they cannot rely upon it and that it often leads them astray. That has been my experience. Here is a case in point in which in acute suppuration, where one expects a high grade of leucocytosis, it is seen that the hemorrhage gives 10,000 more count than does the suppuration and inflammation. I have seen much less suppuration thirty and more thousand leucocytes. The ordinary physician is better off without the blood count in this respect than with it, unless he be an expert in the use of this method.

Dr. H. D. BEYEA read a paper on

SARCOMA OF THE UTERUS.¹

Dr. BALDY.—I have seen two cases of sarcoma of the uterus.

¹See original article, p. 189.

that were so proven by microscopic examination. In one a tumor was removed some years ago together with the uterus. It grew from the fundus and filled the uterine cavity—a great, sloughing mass. The patient passed out of notice and I do not know whether it returned or not. In the other case there was a small round-cell sarcoma of the cervix. The only reason I have not reported the case is that the patient was the mother of a physician and I thought that he might care to report it. The patient had all the symptoms of cancer. She had passed the menopause and was having some discharge of blood with loss of strength and flesh, and the discharge was of unnatural odor. I advised operation and attempted to remove the uterus. This case illustrated the great need of our hospitals concerning the question of etherization.

Four distinct efforts were made to place this patient under ether, and each time she came near dying from the effort. I firmly believe that every institution ought to have a paid etherizer, who would then become an expert in the administration. We finally had to give up the effort under the protest of her physician. I did the only thing left to do: put her in the lithotomy position and performed as high an amputation as possible. The pathologist told me I had removed the cervix half an inch above the disease. This was almost two years ago and there has been no return of symptoms.

DR. CHARLES P. NOBLE.—I have had several cases of sarcoma of the uterus. In two cases the diagnosis was undoubted. Both were sarcoma of the cervix and took the form of vaginal polypi. The first one had been operated on once before in the Woman's Hospital by Dr. Fullerton under the same circumstances, of a large sloughing tumor in the vagina. That was removed and the condition of sepsis was such that she did not feel justified in doing more at that operation, and the patient disappeared from sight. When the patient came under my hands there was the same condition. I did the same operation and advised hysterectomy, but this she refused. The specimens, examined both at the Woman's Hospital and at the Kensington, gave a diagnosis of sarcoma.

The second case was a comparatively recent one. The patient had been operated on twice by Dr. Estes, of Bethlehem, with a diagnosis of recurrent fibroid. I removed the vaginal tumor and subsequently did a hysterectomy. After both operations the patient had much difficulty from vomiting following the anesthetics. After the first operation she vomited for a week; after the second, until she died, on about the ninth day, of insufficiency of the kidneys. The disease had extended into the left broad ligament, and in attempting to get outside of the disease I cut off the ureter and stitched it into the bladder. The post-mortem showed a perfectly healed anastomosis, but the patient died from nephritis. Both were spindle-cell sarcomata. I had

another case diagnosed as sarcoma by Dr. Parvin, but subsequently upon restudy was seen to have been a case of decidua malignum. In a fourth case the clinical diagnosis was that of sarcoma, but the tumor was so necrotic that the pathologist would not commit himself. The patient died of cirrhosis of the liver. No autopsy was made, but my impression was that the patient had sarcoma. I had still another case in which sarcoma was undoubtedly. The tumor was as large as a child's head. I opened the abdomen supposing we had to deal with a fibroid tumor. It was apparent, however, that there was a second deposit in the broad ligament. As the case was a hopeless one I merely did a supravaginal amputation, and the patient died a few months later from the continued extension of the disease which was already present in the broad ligament.

DR. SHOEMAKER.—I recall one case in which there was a large tumor of the uterus with 25 or 30 other sarcomata in different parts of the body, chiefly superficial. The pathological diagnosis was undoubtedly. The uterine tumor was probably of the same type, although this was not proven by the microscope as in the case of the small tumors. In another case of fibroma of the uterus the malignant degeneration of other portions of the uterus proved to be sarcomatous.

In a case of sarcoma now in the hospital the uterus, the left ovary, and the sigmoid flexure are all involved in an inextinguishable mass. The abdominal wall close to the pubic bone, anteriorly, presents a nodule about an inch in diameter, exactly in the median line. Extirpation was not undertaken on that account. Examination of a section by Dr. J. Dutton Steele proved it to be a fibrosarcoma.

DR. JOHN C. DA COSTA.—I can add two cases which happened some time ago. One of them was a sarcoma of the neck of the uterus in a mulatto, in which I did a high amputation such as I had generally proved successful. In that case there was recurrence in six months. In the other case, specimens of which are now in the museum here, I operated, intending to do a hysterectomy for what I thought was a large fibroid uterus. I removed from the top of the uterus a pure fibroma, probably three inches in diameter, from the front of the uterus a fibrosarcoma as large as an orange, and the uterus itself when removed was found to be filled with sarcoma. There were the three varieties in the same specimen: pure fibroma, fibrosarcoma, and pure sarcoma.

DR. H. D. BEYEA.—I simply called attention to one class of sarcomata of the uterus, namely, those arising in the myometrium of the uterine body or as a sarcomatous degeneration of a myoma of the uterus. The sarcomata developing from the endometrium, likewise those from the cervix uteri, are clinically and pathologically distinct from the class I refer to. Dr. Da Costa spoke of one such case, Dr. Noble one, as a recurrent fibroid.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY.

Meeting of November 25, 1902.

The President, BACHE MCE. EMMET, M.D., in the Chair.

ADENOCARCINOMA OF THE UTERUS.

DR. LEROY BROUN.—I have two specimens to present—both cases of adenocarcinoma of the uterus. The chief feature in the first case is that the uterus was in the condition of complete procidentia. After removal of the uterus by the vagina, the round and broad ligaments of both sides were sutured with No. 2 chromic catgut to the cut edge of the vagina. At the present, four weeks after the operation, the vagina is held well up. Later on I expect to build up the perineal body. This attempt to hold up the prolapsed vagina through the firm attachments of the round and broad ligaments I am aware has been done before and, I think, with good results.

The second case I report for Dr. Ford, House Gynecologist at St. Vincent's Hospital. The woman was single, 51 years old. She had a very small vagina. Two years after the menopause flowing recurred and continued for two months. A diagnosis of carcinoma of the uterus was made. Dr. Ford operated, and the patient made a good recovery.

CLAMPS IN HYSTERECTOMY.

With the present form of clamps, the instrument not only controls the artery, but the tissues in the grasp of the blades are subjected to firm compression. These clamps can be removed with safety after eighteen to twenty-four hours. With the clamps made some time ago this early removal cannot be accomplished with as much impunity; they should be left on longer. A vaginal hysterectomy was done at St. Vincent's Hospital yesterday. Good clamps were not at hand, and such as I have now in my hand were put on. I started to take them off after the expiration of twenty hours, and had a hemorrhage. With the use of a properly-made clamp, such as this other one I show for comparison, the pressure is such that the operator can remove them after eighteen hours with perfect assurance of complete hemostasis. I bring the matter up, feeling that, in getting in the habit of taking off the clamps early, we may be led into error or an embarrassing position by using an inferior instrument. The hemorrhage which I mentioned was fortunately controlled and caused no further trouble. The clamps will be taken off to-mor-

row. The operation was done yesterday morning at 11 o'clock and the clamps taken off this morning at 10. We have never had any trouble in taking off a good clamp; it all depends upon the strength of the clamp.

DR. BISSELL.—More than six years ago it occurred to me that the hysterectomy clamp then in common use had many defects, and these defects I tried to overcome in the instrument Dr. Broun has kindly referred to as being durable and strong. Its chief feature consists of a tongue and groove, each being bevelled so as to gain one-twelfth of an inch at points of blades. There is also considerable spring in the blades. These features prevent the crowding of tissue in the angle or heel of the blades, and allow of uniform pressure from heel to toe. When the blades meet the tongue enters the groove and fixes the blades so that they cannot move sideways upon each other. Much strain is thus taken off the fulcrum or joint, and even after years of service the instrument does not wobble, become weak at the joint, or lose its strength. The edges of both tongue and groove are rounded and do not cut. So exact and powerful I found them that it became my custom to remove them after twelve or fifteen hours without fear of hemorrhage. This suggested to me the idea I worked out later in the crusher or angiotribe. I had hoped to devise in the angiotribe an instrument that would crush vessels perfectly and uniformly and one that could be removed instantly without fear of bleeding. I soon found, as did the French and German inventors, that the closing of the vessels was best accomplished when the pressure was not removed for several minutes. I have used my instrument in every kind of vaginal and abdominal operation with uniform success, but I do not now depend upon it entirely. When I began the study of the angiotribe it was with the hope that the pressure would weld together the peritoneal surfaces. In this I was disappointed, as I found that these surfaces after a few minutes invariably separate. Now I always place a running stitch of catgut along the edges to keep them together.

DR. BACHE MCE. EMMET.—Will it act upon the mass as well as simply about the vessels? You can still count on the grooves meeting the tongue; the force is strong enough to bring the two parts in apposition, no matter what you take?

DR. BISSELL.—Yes.

DR. JOSEPH E. JANVRIN.—Rather early in the operation of vaginal hysterectomy I devised a pair of clamps; I used large ones—long enough to clasp the broad ligament. I never had a hemorrhage following their use; I applied them many times up to some years ago, when I desisted almost entirely from the use of clamps or forceps of any kind. It was my habit to leave them on forty-eight hours. I never had a hemorrhage, although they clasped the whole broad ligament. Recently I have used the angiotribe—Tuffier's, which acts very much as Dr. Bissell's does. I use it not only for the uterine but for the ovarian vessels. What

ever I put on, even if nothing more than an ordinary clamp forceps with a little hold to it, just to control that one artery alone, I always take it off now at the end of twenty-four hours. I have never had a hemorrhage thus far. The second clamp shown is very defective; it holds at the point and does not hold at all at the hilt. The point closes; it is all open below. It is very defective; I can well imagine how that did not clamp the artery sufficiently firm to control hemorrhage. However, any artery controlled by any clamp for twenty-four hours should have a sufficiently strong plug formed in it to allow the removal of the forceps at that time. Generally the plug is not disturbed at all when the forceps are removed, and it should prevent hemorrhage. I believe it almost always does.

The late Dr. Speir, of Brooklyn, many years ago read a paper in which he reported a series of experiments which he had made on dogs, sheep, and other animals, demonstrating how long a time it was necessary to leave a ligature on and then cut it away without there being any hemorrhage. Even at that time the time was reduced to thirty-six hours, even on large vessels, without any hemorrhage at all; and fully thirty years ago the late Dr. Peaslee used a little appliance for this purpose in cases of ovariectomy. It was before the days of antiseptics. He devised a little tube around which he tied the stump—a little scabbard, so to speak, about two and one-half inches in length. I have one which I have kept as a memento. It had perforations from side to side. The pedicle was wound around this little scabbard; silk ligatures, carried around the pedicle and through the perforations, secured the pedicle to the scabbard and controlled all hemorrhages. The upper end of the scabbard and the ends of the ligatures were then brought out of the abdominal wall and secured there, and the abdominal incision tightly closed, excepting where the tube and ligatures projected. At the end of forty-eight hours he took a very small knife which fitted the scabbard, carried it down into it and cut the ligatures. The scabbard, with the ligatures, was withdrawn through the abdominal opening in which it had rested, and the freed pedicle remained in its position in the abdominal cavity. I assisted Dr. Peaslee in many cases in which this method of ligating the pedicle and then removing the ligatures at the end of forty-eight hours was made use of, and in no case was there secondary hemorrhage.

DR. BROUN.—Some years ago it was the custom with some to use a clamp with jaws sufficiently long to include the whole broad ligament. The jaws of these clamps were thin and necessarily weak. I recall an operation that I saw done with such clamps. In removing them at the end of thirty hours the ovarian artery began to spout at once. The operator instinctively reclamped. Unfortunately an intestine was injured by being caught by the end of the clamp at the time of reclamping, with a fatal result. All this shows that unless the clamp is sufficiently strong it should not be removed early; it should be left on longer than

twenty-four hours. But a strong clamp one can remove in twelve to eighteen hours.

DR. EMMET.—I have some of the French instruments. In them the point is first to touch; then the pressure is uniform progressive downward, so that everything in its grasp is compressed. The fault in clamps formerly used was that in grasping near the shank the distal extremities opened; there was too much spring in them. I devised a clamp which began to close at the top, even locking, not by scissors motion, but by interlocking tooth and socket. The broad ligament was passed front and back, locked in it, then gradually crushed. The instruments were made straight and curved. There was no possibility of slipping. In simplicity they are equal to those jointed in the middle. The locking requires very little space, and for their removal the dressings are scarcely disturbed. The wound in the top of the vagina is not interfered with and there is no hemorrhage; there were, for the moment, there is every chance of closing the clamps and cutting it off instantly without dread of including gut in the jaws. There is a chance, in putting forceps up into a dark space, of catching a bit of the intestine, which cannot occur if we lock and compress from the point downward. My clamps have three grooves instead of one, as has Dr. Bissell's.

DR. BISSELL.—All angiotribes are made with a spring in the blades. The great power which is necessary in these instruments is chiefly spent in overcoming the resistance of this spring.

DR. HERMAN GRAD presented a specimen of a

LARGE SUBMUCOUS FIBROID REMOVED BY SUPRAVAGINAL OPERATION.
BOTH TUBES AND BOTH OVARIES TAKEN OUT.

I would like to ask the gentlemen present to give expression of their opinion about the advisability of deliberately leaving one or both ovaries in in these fibroid cases—not in cases where one has to do a good deal of digging to get the ovary out, but where it may be very readily removed; whether one should deliberately leave these organs. The patient is 27 years old. The tumor was removed because of very serious hemorrhage. I refer to the case in my paper.

DR. HERMAN GRAD read the paper of the evening:

COMPLICATIONS FOLLOWING TWO HYSTERECTOMIES FOR FIBROID.

DR. JANVRIN.—Both cases are very interesting. The first brings to mind a case of obstetrics I attended some twelve or fifteen years ago—the one case I have ever met with in my own practice where the same accident occurred. As in this case, the patient died very suddenly, within an hour from the time the symptoms developed, on the third day after confinement had taken place. I was called to the case very hurriedly when the symptoms developed, and by good fortune I happened to call Dr. Janeway, who was just starting from his office. The patient

¹See original article, p. 181.

was at the Fifth Avenue Hotel. He saw her and fully agreed with me in the diagnosis. I have never seen this accident after hysterectomy or in operations connected with the uterus or the appendix, although I know it has occurred. It is not so frequent as after confinement.

DR. BROWN.—I have nothing to say except to thank Dr. Grad for his masterly paper. As to the question of typhoid, mentioned in his paper, I think it well for us to have it in mind in all cases of temperature rise. Only the other day I was asked to see a patient by an excellent diagnostician on the West Side. The patient had abdominal pains and he felt sure she had some pelvic trouble on the right side or appendicitis. After a thorough examination an absence of appendicitis was evident, as also any trouble in the pelvis. The spleen was enlarged. She was sent to St. Vincent's with a diagnosis of possible typhoid, which was afterward verified.

I was asked, some years ago, to curette a patient because of a rise of temperature two weeks after confinement. She had been curetted by the family physician, though without any improvement. A digital examination of the interior of the uterus showed that nothing was present. The patient had typhoid fever, from which she recovered. Those cases are coming up in practice and it is well to bear it in mind.

DR. BISSELL.—The question as to the advisability of removing ovaries when hysterectomy is performed for fibroid has not been answered this evening. For myself, I never remove healthy ovaries with the fibroid uterus. I make it a rule to save every ovary or part of an ovary possible. As to the subject of embolism following operation, I have never had the misfortune to have it happen in my practice, but have seen it several times in the practice of others.

DR. EMMET.—I have seen a number of cases of phlegmasia, but never has the clot been disturbed, except in the case of Dr. West. I think we cannot be too emphatic in enjoining quiet for the welfare of the patients. Sometimes they are obstinate—they will insist upon rising; they are always susceptible to such accidents, which then redound to the surgeon's injury and bad name.

In regard to Dr. Grad's operation, I want to ask if he would give us any more acceptable reason for removing the entire uterus. The patient was 27 years of age, with an intrauterine growth which he could have reached by drawing down the cervix, then excising it. I think he could safely have accomplished this, first opening the uterus by dilating with sponge tent covered with cot or tupelo tent and examining with finger. Knowing what one has to do, he could draw down, incise the cervix if necessary, clamp the vessels, and remove that growth from the fundus. If the case demands an attack by the abdominal route, I think one should proceed as one would for myomectomy—slit through the fundus, control the vessels, excise a section of the fundus with the growth, stitch together, and have a beautiful uterus left. A

number of cases have been reported where, after such procedure women have given birth to children. The operation is not formidable. The method is not new here, however. It was well developed later by Ségond, and one of his assistants wrote an elaborate essay upon the method. Reynolds, of Boston, in another paper also described several myomectomy patients in which pregnancy developed. I think it should take a great deal to impel us to forego that kind of surgery in young women. Considering the question of an ovary being left in, I should say more positively that we should try to avoid, in some measure, the development of the nervous symptoms which come with formenopause, and it is my constant practice to leave as much of the adnexa as I find possible after removing the non-malignant uterus in young women, stitching the broad ligaments to the fundus of the vagina or to a portion of the cervix, if that is left.

DR. JANVRIN.—I am glad Dr. Grad brought up the point as to whether this case were better treated as it was, or whether it would be better to have attempted the removal of the fibroid through the vagina. I would have attempted to remove it through the vagina, and, I think, would have succeeded, and in that way have saved the uterus.

The other point I had forgotten—Dr. Grad's question as to the preservation of the ovaries in such cases as this. It has been my habit, as it has of most surgeons, to preserve them whenever possible, no matter what the age of the patient, provided they are not diseased, of course. I have gone so far within the last five or six years as to almost invariably leave them in when I remove the uterus per vaginam for cancer of the cervix or cancer of the body. In those cases, so far as I can judge, there has been no early subsequent development of cancerous trouble in the ovaries themselves. If the disease has recurred it has occurred at first in the cicatrix low down in the pelvis, not in the ovaries. In those cases in which I have been fortunate enough to remove the uterus at a very early stage of the disease, and in which the patients are still living and in good health—quite a large number now—some operated on fully five or six years ago, there has been no trouble whatever. The patients have had a much happier life with the ovaries preserved. They avoid, as a rule, the great nervous irritation which frequently follows the removal of the organs and appendages. As a rule I think their condition is better physically and mentally, and for that reason, as I say, even in malignant disease, where I find the adnexa are perfectly free at the time, I invariably, for the last five or six years, have left them in.

DR. EMMET.—Perhaps Dr. Janvrin would say he would limit this practice to those cases he *knows* are in a very early stage.

DR. JANVRIN.—Yes, as a rule, but not absolutely.

DR. EMMET.—We cannot tell when lymphatics are engaged and as the ovaries do partake so readily of infection if there are any nodules overlooked, I think that most operators hold

should remove all tissue we can, once the disease is recognized as malignant.

DR. JANVRIN.—Where the disease is so far advanced that we expect it to recur, in a majority of cases we think it best not to do any radical operation. Still, in some of those cases we feel justified in doing hysterectomy per vaginam or abdomen, but with the expectation that the disease will probably return. In such cases my experience has been this: that the redevelopment is at the cicatrix, or close to it or to either side of it, out in the parametrium rather than in ovaries or tubes. I think that, as a rule, it does not occur as a secondary deposit in the tubes.

I had one case, some fifteen years ago, in which I removed a carcinomatous growth in the right tube. Quite a growth started there, confined absolutely to the tube. I remember, in looking up the literature, that Säger had reported one such case. It was the only one I could find at the time. Since then I have heard of a few others, but I have not kept track of them. So far as I knew at that time, this case of mine was the second reported case of *primary* development of cancer in a Fallopian tube. When redevelopment takes place it is more apt to occur in the cicatrix and immediate vicinity than in the ovary and adnexa.

DR. GRAD.—I am very glad to get an opinion on the question of leaving the ovaries in hysterectomies for fibroids. In this case, at the time of operation we found one ovary was quite enlarged, the seat of a hematoma; and the other ovary did not look healthy, so it was removed. I think the question has not fully been decided. Cases have been reported where secondary operations were necessary to remove subsequently diseased ovaries. I remember a case in Dr. Hanks' service. The ovaries were left and seven months later he had to open the abdomen and remove the diseased organs, as there was pain continuously after the operation. At the time of operation the ovaries looked healthy. I remember at a discussion in a medical society the question was brought up and the surgeons were not unanimous on the point of leaving the ovaries. Some went so far as to state that they believed fibroid of the uterus is the result of an infection, and the ovaries are apt to be involved with the same disturbance, hence the advisability of removing them. I think the gynecologist is better able to judge of the matter, as he sees the cases earlier.

As regards the criticism of Dr. Emmet, I take it well; but if the specimen is examined it will be found that the tumor is entirely above the internal os; the cervix was absolutely normal in this case. I was surprised to find such a specimen when the uterus was opened. It was impossible to diagnose the exact condition of the tumor. The depth of the uterus was five inches, two inches of which were taken up with the cervix. Had that tumor gone on I have no doubt the uterus would have finally caused the sub-mucous fibroid to appear at the cervix. I was unable to diagnose it. I did not know the condition until I removed it; if I had I

would have dilated the cervix and attempted to enucleate the tumor. The hemorrhages were so alarming in this case that the patient had to be kept in bed continuously with the vagina packed with gauze. After six months' bleeding it was simply a question of saving her life by controlling the hemorrhage.

H. GRAD, *Editor*.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.¹

DR. GEORGE H. NOBLE, of Atlanta, Ga., read a paper on
INTRAMURAL EXTRAPERITONEAL ANCHORAGE OF THE ROUND LIG-
AMENT FOR POSTERIOR DISPLACEMENT OF THE UTERUS.²

DR. F. F. SIMPSON, of Pittsburg, Pa., presented a paper on
INTRA-ABDOMINAL BUT RETROPERITONEAL SHORTENING AND ANTE-
RIOR FIXATION OF THE ROUND LIGAMENTS FOR POSTERIOR
UTERINE DISPLACEMENTS.³

DR. ROBERT T. MORRIS, of New York, read a paper on
GAS-BACILLUS INFECTION.

He reported three cases which occurred this spring in his practice. He said there were a number of gas-forming bacilli belonging to the colon group—anaerobes—and he believed that it was very essential to make an elaborate study of them in order to classify and group them properly.

The first patient was 46 years of age, upon whom he operated for myoma of the uterus. The patient was in a comparatively good condition, excepting for hemorrhages, which furnished the indication for operation. He removed the uterus, leaving the stump of the cervix covered by peritoneum. The operation was performed April 30, 1902. The following day the patient complained of headache; she had a pulse of 116; temperature normal; respiration 20. There was a bloody discharge from the vagina. The next day her temperature was 99.6°, pulse 102, and respiration 22; nauseated, and she suffered from continuous headache. The bloody discharge from the vagina had increased in amount.

May 2 the patient complained of intense pain in the abdomen; continuous headache; temperature 100°, pulse 120, respiration 24. He examined the abdominal wound and found that primary union had occurred. The subcutaneous tissues on the right side

¹Concluded from p. 124 January JOURNAL.

²See original article, p. 174.

³See original article, p. 165.

of the abdomen were distended with gas, which was quite abundant in amount, but unassociated with tenderness.

On May 3 the gas within the bowels caused great distress; headache was continuous; temperature 99°, pulse 120, and respiration 24. A bloody discharge continued from the vagina.

On May 4 the patient became very restless, nauseated, had continuous headache, with a temperature of 100.6°, pulse 144, respiration 16. On May 5 and 6 symptoms were somewhat similar, except that there was gas beneath the skin of the abdomen. He opened at this point for the purpose of obtaining a culture, when a great deal of gas escaped as he was going through the skin with a pair of scissors. The specimen became exposed in such a way as to interfere with its integrity, so that he had no bacteriological report of this case. The patient died on the seventh day.

Dr. Morris detailed two other cases. From these, specimens were obtained and submitted for examination, showing pure cultures of the bacillus aerogenes capsulatus. These patients recovered.

DR. ALEXANDER HUGH FERGUSON, of Chicago, detailed two cases of gas-bacillus infection. He said the bacillus aerogenes capsulatus had its habitat in the soil, like the bacillus of tetanus. It was not a pyogenic organism, as had been proved by Welch and Nuttall, who had made most extensive experiments with it, and who called it the gas bacillus. It was nothing but the bacillus emphysematosus of the Germans. It found its way into the body on greens, cabbage, etc. One important point was to clean out the alimentary canal to get rid of it. It found its way into the wound from the finger-nails, hence the great importance of scrubbing the nails, etc.

DR. J. WESLEY BOVÉE, of Washington, D. C., had encountered three cases of gas-bacillus infection, all of them following the removal of the appendages for pus. One of the patients died. Autopsy showed the gas bacillus in various portions through the viscera, particularly in the liver and skin.

DR. CHARLES R. ROBINS, of Richmond, Va., followed with a paper on

PROLAPSE OF THE UTERUS.

In discussing this subject he said it was necessary to first determine how the uterus was normally maintained in its position. The ligaments arose and were attached in practically the same plane; therefore their function could not be suspensory. They acted only as guy ropes to prevent too great movement backward and laterally. The tissues on which the uterus rested, the vagina and bladder, were insufficient of themselves to support it; therefore other explanations should be sought as to how the normal position was maintained. These were:

1. The action of the perineum, pressing upward and forward against the anterior wall of the vagina, completely closing the

outlet, making the female pelvis practically a closed cavity. As long as this was the case the force of abdominal pressure and of gravity was received upon the pelvic floor and only slightly upon the contained viscera.

2. The normal density of the uterus being approximately the same density as the other pelvic viscera, there was no disposition for the uterus to fall and thereby displace viscera of the same density.

3. The normal position of anteversion of the uterus received the intra-abdominal pressure upon the posterior aspect of the fundus, so that its action was to tilt the uterus forward and to push it downward.

4. The tonicities of the abdominal walls had a material effect in preventing prolapse and in favoring it when it was lost.

The etiology involved one or more of these four points, but the last was more frequent when several of them were concerned. Loss of supporting power of the perineum was most common and most important. This might be occasioned by laceration or by atrophic changes incident to old age or disease.

The other causes were: Increase in the weight of the uterus from subinvolution, etc.; relaxation of uterine ligaments, permitting the uterus to fall back into the axis of the vagina, occasioned by repeated pregnancies, etc.; relaxation of abdominal walls from similar causes, and absorption of pelvic fat and connective tissue as a result of old age or disease.

The changes associated with or consequent upon prolapse must also be considered. Prolapse of the vagina, by pulling upon attachment to the cervix, drew out that portion of the cervix above after descent of the uterus had been arrested at the point at which the uterine ligaments had become suspended, causing the condition known as elongation of the supravaginal cervix. If relaxation of the ligaments was so great as to offer no barrier to descent, the fundus followed the cervix until it lay outside of the body. Other changes were hypertrophy of the cervix from passive congestion; subinvolution of the uterus; rectocele and cystocele; attenuation of the uterine ligaments; stretching of vagina and vaginal outlet; and atrophy of structures of the perineum from pressure.

Treatment.—Great attention must be paid to preliminary treatment, and by this means many of the changes incident to prolapse and passive congestion might be overcome. This consisted of absolute recumbent posture in bed for a period of from three to six weeks; reduction of the uterus to its normal position with patient in the knee-chest position, as frequently as it recurred, assuming this position several times daily; laxatives and enemas to prevent straining; copious vaginal douches of salt water, made slightly antiseptic if ulceration or leucorrhea be present. Hypertrophy of the cervix and subinvolution of the uterus, when they persisted, should be met by curettage of the uterus and amputation of the cervix; cystocele by S

operation; laceration of the perineum by Emmet's operation in recent cases, and Hegar's operation when the case was of very long standing or the patient advanced in age. In addition some operation must be employed to maintain the uterus in the anteverted position. Ventrosuspension was most commonly employed, but it should be used only to place the uterus in such a position that intra-abdominal pressure would be received upon the posterior aspect of the fundus, and not with a view of making the attachment so firm as to prevent descent. This line of treatment, while not new, would be found very effective when thoroughly carried out.

When relapse occurred the author thought that Edebohls' operation of panhysterokolpectomy was the only one capable of overcoming the condition. He reported a case operated upon by this method in July, 1898. The patient became pregnant, and was delivered without difficulty or accident in 1900, and was enjoying good health in 1901, when last seen, and had had no recurrence of the prolapse.

DR. H. J. BOLDT, of New York, presented a paper on

ENDOMETRITIS.

The author said it was principally to Ruge, of Berlin, that the profession owed its more exact knowledge of uterine pathology. He spoke of the glandular, interstitial, and mixed varieties of endometritis. These formed the basis of all variations or special forms of the disease. He had in a number of instances found the uterine cavity filled with polypoid nodules, in which the quantity removed aggregated from fifteen to twenty cubic centimetres. On microscopical examination the picture presented showed adenoma. Such conditions had been classed by some writers as a separate form—polypoid or fungous endometritis. While clinically such designation might be correct, the author saw no reason for classing such change under another name than adenoma of the endometrium, from the point of view of pathology.

Acute interstitial endometritis was recognized by the diffuse invasion of small round cells into the stroma. Frequently pus corpuscles were also seen, and the vessels were found to be pressed apart and compressed by the invasion of the inflammatory corpuscles. Sometimes the round-cell infiltration was found more in the deeper stratum of the mucosa in patches, rather than in diffuse form. Later, when the disease passed into the chronic state, the glands became more or less obliterated, with atrophy of the endometrium. In another form of chronic interstitial endometritis the stroma cells were enlarged and contained a centrally located nucleus and resembled sarcoma cells to some extent. The mixed forms of endometritis showed that changes were present in both the glands and the interstitial connective tissue.

Of the forms of tubercular endometritis, the ulcerative variety

was usually met with. The acute miliary and the interstitial varieties were very seldom seen. Primary tubercular endometritis is a rare disease.

While the etiology of all specific forms of endometritis was well understood, those not depending upon micro-organisms and ptomaines, in many instances, had uncertain causative factors.

The local treatment giving the promptest relief from bleeding in instances of chronic endometritis was undoubtedly to be found in the judicious use of the curette. He would caution, however, that although the operation was comparatively simple, it should not be resorted to indiscriminately, as was being done by many general practitioners; neither should it be done by one untrained in the technique of gynecological surgery, because frequently serious results followed its improper employment.

Before the operation it was imperative that a careful manual examination be made to determine whether or not tubal swelling was present. He had known tubal pregnancy and pyosalpinx to be ruptured as the result of the traumatism produced by the operation. In a few instances he had desisted from curetting and opened the abdomen subsequently through the disclosures revealed by bimanual examination. If resorted to, the same precautions as to cleanliness should be employed as in a major operation. In his experience about sixty per cent of the women were relieved from atypical bleeding for a variable period of time by curetting. After curetting it was custom to make an application of pure carbolic acid to the interior of the uterus. In patients who had not obtained desired relief by curetting subsequent local treatment became necessary.

The general condition of the patient in all instances required careful supervision. Good food, proper exercise, baths, douches medicated or plain warm water, as the case may be, were important adjuvants.

After the endometritis had become chronic it should be treated with intrauterine applications of one of the usual remedies. He preferred a ten per cent solution of carbolic acid. Frequent intrauterine irrigations with large quantities of a mild antiseptic solution also gave good results.

THE USE OF THE ELECTRIC CAUTERY CLAMP IN THE TREATMENT OF CANCER OF THE UTERUS.

DR. CHARLES P. NOBLE, of Philadelphia, read a paper with this title. He presented for consideration a new adaptation of an old principle in the treatment of cancer of the uterus. The electric cautery clamp, he said, was a highly perfected and practicable instrument, whereby it was entirely feasible to burn the attachments of the uterus and to leave not only a bloodless field, but one in which the lymphatics were sealed by a thorough cooking or roasting process. Hysterectomy performed by means of the electric cautery clamp possessed all the advantages

any of the methods heretofore in use, and had in addition certain advantages peculiar to it alone. These especial advantages were:

1. More tissue outside of the uterus was removed or cooked than by the classical methods.

2. All the connections of the uterus were severed either through tissue which had been cooked in the bite of the cautery clamp or these connections had been severed with the electric cautery knife. In this way the lymphatic vessels were sealed either by the burning or the roasting process. Whatever the risk of implantation of cancer upon the field of operation may be, by this means it was greatly lessened or done away with. An exception to the above statements must be noted, in that the attachments of the bladder to the uterus were severed in the usual way.

3. Much less blood was lost than was usual with the classical technique, and a dry, bloodless field was left after operation.

In referring to the history of the development of the electric cautery clamp, Dr. Noble referred to the admirable work of Keith and Byrne.

It remained for Dr. A. J. Downes, of Philadelphia, to adopt the theories of his predecessors and to develop a thoroughly practicable electric cautery clamp. Dr. Downes used the method wherever there were pedicles to deal with, having abandoned the ligature in favor of the cautery clamp.

The technique of hysterectomy by the electric cautery clamp method was described in detail.

The essayist had operated five times by this method. Dr. Downes had used the method in cancer of the uterus in two vaginal hysterectomies, two vagino-abdominal hysterectomies, and one abdominal hysterectomy upon his own patients; also in one vagino-abdominal hysterectomy operated on for Dr. Hirst, and two abdominal hysterectomies operated on for Dr. Kelly.

In closing, the essayist said that some years must elapse before the actual value of the electric cautery clamp in the treatment of cancer of the uterus could be determined; but in view of the results secured by Byrne and of the positive theoretical advantages it had over the ligature method, it was reasonable to expect that it would give a larger percentage of cures than the older methods, more especially in cancer of the cervix.

CONDYLOMATA VULVÆ.

DR. GREER BAUGHMAN, of Richmond, Va., contributed a paper on this subject, in which he said that there were two varieties of condylomata. These differed in the etiology, in the general and local symptoms which accompanied them. They likewise differed in their appearance, both gross and microscopic. He reported 18 cases, and described 8, which were illustrated with photographs.

DR. H. A. ROYSTER, of Raleigh, N. C., reported an interesting case of

OVARIAN FIBROMA.

The author referred to the paper of Dr. Peterson, of Ann Arbor, Mich., which was read before the meeting of the American Gynecological Society in May, 1902. A few days after reading Peterson's valuable contribution the author came unexpectedly upon a case of this kind.

The patient, Mrs. G., aged 55, weight 180 pounds, was admitted to Rex Hospital September 20, 1902. She had borne several children, all of her labors being difficult. Her menses began at 14 years and gave no trouble at first. After marriage she began to suffer from profuse menorrhagia and metrorrhagia. At the age of 25 a small growth, probably a polyp, was removed from the cervix. The menopause occurred at the age of 45 years, but about two years ago the flow recurred, lasting ten days or more. It was not now so excessive, and appeared only at irregular intervals. Twelve months had elapsed since she had her last severe hemorrhage. She complained of pain in the left side and around the umbilicus, and a burning sensation in the chest. Urination was difficult and frequent. Her general condition was good.

Examination revealed a very hard, smooth tumor in the posterior cul-de-sac. It was about the size of a large orange and was somewhat movable. The uterus, apparently of normal size, was pushed upward by the mass and seemed to be connected with it posteriorly. Diagnosis, fibroma of the uterus.

Operation September 23, 1902. The abdomen was opened by a four-inch median incision. A small quantity of ascitic fluid was present. There were no adhesions, and the tumor was easily brought up and delivered. It was a dense, somewhat flattened mass, attached by a pedicle to the right broad ligament. The pedicle was tied with a double ligature of silk and the tumor removed. The peritoneal cavity was sponged out dry and the wound closed with the tier suture. The uterus was normal in size, the left ovary was atrophic. The patient bore the operation well, only twenty-five minutes having been consumed in the entire procedure. The result was an uncomplicated convalescence and restoration to perfect health.

Carefully-prepared pathological and microscopical reports on the specimen accompanied the paper, the tumor being pronounced ovarian fibroma.

THE SURGERY OF THE LOWER URETER, WITH CASES.

DR. HUGH H. YOUNG, of Baltimore, first gave a brief description of the topographical anatomy of the lower ureter. After crossing the iliac vessels, he said the ureter was naturally divided into two portions; the first, or parietal, ran downward and outward along the bony wall of the pelvis to a point in front of the spine of the ischium, where it turned sharply inward.

and began its second or visceral portion over the floor of the pelvis to its junction with the bladder. During the first portion the ureter was in close relationship with the internal iliac artery and its branches, and was quite out of reach from within the rectum or vagina. During the second half of its course it rapidly approached the vagina, but was not in close relationship until within about three centimetres of its lower end. It was this part alone that was easy of access by the vaginal route. Higher up in the female, as well as in the male, the iliac extraperitoneal route was by far the easier and to be preferred for many reasons, which were set forth in the paper.

The conditions of the lower ureter found to require surgical treatment were as follows: anomalies, as to number, location, and condition of the ureter; prolapse; ureteritis; calculus; neoplasm; valve formation; stricture; and fistula of the ureter.

The anomalous terminations of ureters into the uterus, vagina, and vulva had been successfully transplanted into the bladder, but no operation of this sort was recorded in the male.

Prolapse of the ureter into the bladder was rare. Only 19 recorded cases had been found in the literature. Only 2 cases were operated, and 1 died. The writer reported a case of his own.

Ureteritis might be simple or tuberculous, and was not different in the lower ureter than in the upper, except that it was much more apt to lead to stenosis at the lower end. The changes observed on cystoscopic examination were discussed at length, with a report of the findings in several cases. Calculus impacted just above the bladder or in the intramural portion could generally be diagnosticated at once by the cystoscopic appearance of the orifice; congestion, bulging, stenosis, with prolapse of the papilla, generally being present. Likewise tuberculosis could be recognized. In lesions of even lesser degree the orifice generally gave evidence as to which was the affected side.

Fistula of the ureter might be congenital or acquired, the latter generally occurring in the female after labor or pelvic operations. Anastomosis of the divided ureters or implantation into the bladder should be done. Neoplasms might develop within the ureter, but only two cases were reported in the lower ureter. The ureteral papilla and its immediate neighborhood in the bladder was a favorite seat for vesical tumors. The writer reported one case of a pedunculated tumor, two inches in diameter, which sprang from the right ureteral orifice, and was successfully removed suprapubically.

The most important affection of the lower ureter was the impaction of calculus. Calculi which had passed the two points of constriction of the upper ureter, just below the renal pelvis and at the crossing of the iliac vessels, were most apt to lodge at the vesical junction or at the intravesical end, although they sometimes lodged in the intramural portion or in the paraischial bend. In the female the intraligamentous portion of the ureter

was a favorite location for calculi, and numerous cases were on record in which they had been removed through the vagina.

In the male, only 20 cases in which calculi impacted in the deeper pelvic ureter had been removed by operation were to be found in the literature, and 10 of these were intravesical or intramural and were removed through the bladder. One of these cases was that of the writer, in which he found with the cystoscope a small stone projecting from the orifice of the left ureter and pried it out by means of a catheter accompanying Casper's male ureteral catheter-cystoscope. In the other 10 cases the site of impaction was above the bladder, in some part of the pelvic course of the ureter. In one of these the stone was removed by incision through the rectum, with fatal result. In another the incision was made in the perineum, the rectum pushed back from the prostate, the ureter exposed at its vesical junction, and the calculus extracted. Fenwick, the author of this operation, claims that this is the method of choice in the male. In the other 8 cases the calculi were removed through the iliac extraperitoneal route, 5 by European operators and 3 in Baltimore. In the two cases of the writer the calculus was situated in the juxta-vesical portion of the ureter, but was very easily removed by the iliac extraperitoneal route. Finney had a similar case.

As to choice of route, it was clearly demonstrated that for stones in the pelvic ureter the iliac extraperitoneal route was the best, with the possible exception of the last three centimeters of the ureter in the female, where the close proximity of the vagina made that route an easy one. The difficulty of suturing the ureter here, the inability to examine the kidney above or to treat stricture below, and the frequent persistence of fistula afterward might yet prove that the iliac route was the best for all cases above the bladder in the female also.

Stricture of the ureter was rare and only those cases requiring more than dilatation with ureteral catheters were on record. In one, Meyer performed nephrectomy on account of inability to dilate the stricture from above. In another, Israel, finding an impermeable stricture below a calculus at the lower end of the ureter, transplanted the ureter into the vertex of the bladder extraperitoneally. In the third case the writer, after removing a calculus from the juxta-vesical ureter and being unable to dilate the stricture from above, opened the bladder along its lateral wall and divided the stricture with a scalpel intravesically. Large ureteral bougies were then passed into the bladder with ease. Examination with the cystoscope six months later showed that the stricture had not recurred.

The iliac route was, therefore, the method of choice for operations upon the ureter in its pelvic course above the bladder. In intramural and intravesical lesions the suprapubic incision in the male, and the vaginal in the female, were the methods of choice. The cystoscope might sometimes be effectual in dislodging cal-

culi of the lower end, but only when small, as in the case reported, and was always of great service and generally absolutely necessary for accurate diagnosis. Catheterization of the ureters in both male and female was now easily accomplished.

The Council presented the following preamble and resolution, which were adopted:

Whereas, Dr. W. E. B. Davis, during twelve years of faithful service as Secretary of this Association, declined to draw any salary for his services, expecting in time to establish some suitable memorial of this Association with the fund thus created; therefore, be it

Resolved, That, in consideration of this fact, two thousand dollars be appropriated for the establishment of a memorial in Birmingham, Alabama, the birthplace of the Association; and that this memorial be placed in the Charity Hospital of that city as a ward to bear the name of the Association.

The following officers were nominated and elected: *President*—Dr. J. Wesley Bovée, of Washington, D. C.; *First Vice-President*—Dr. Bacon Saunders, of Fort Worth, Texas; *Second Vice-President*—Dr. Christopher Tompkins, of Richmond, Va.; *Secretary*—Dr. W. D. Haggard, Jr., of Nashville, Tenn.; *Treasurer*—Dr. Floyd W. McRae, of Atlanta, Ga. Place of meeting, Birmingham, Ala.; time, the week preceding Christmas, 1903. Chairman of Committee of Arrangements, Dr. John D. S. Davis, of Birmingham, Ala.

REVIEWS.

A TEXT BOOK OF THE SCIENCE AND ART OF OBSTETRICS. By HENRY J. GARRIGUES, A.M., M.D., Consulting Obstetric Surgeon to the New York Maternity Hospital; Gynecologist to St. Mark's Hospital; Professor of Obstetrics in the Post-Graduate Medical School (retired); Professor of Gynecology and Obstetrics in the School for Clinical Medicine (retired); Honorary Fellow of the American Gynecological Society; Honorary Fellow of the Obstetrical Society of Edinburgh; Ex-President of the German Medical Society, etc. Pp. 844. With 504 illustrations. Philadelphia and London: J. B. Lippincott Company, 1902.

All students of obstetrics will welcome with pleasure this work from the pen of so distinguished an author. And they will not be disappointed, as the book Dr. Garrigues has given us is worthy of his name and will take its place as a standard text book and work of reference for both the undergraduate student and the practitioner. Although new publications on obstetrics at this time seem superfluous, yet there is always a place for a book which covers the subject so completely and systematically,

and which reflects the ideas and views of such a well-known teacher. The author divides his book into two grand divisions: the first is the Normal Division, and the second is the Abnormal Division. Under the Normal Division we find the subject subdivided into Foundation, Normal Pregnancy, Normal Labor, and Normal Puerperly. Under the Abnormal Division we find Abnormal Pregnancy, Abnormal Labor (Dystocia), Obstetric Operations, Abnormal Puerperly, and Notes on Diseases of New Born Children. By this arrangement the student is able to learn the simple and uncomplicated conditions present in normal labor before approaching the difficulties and problems of abnormal parturition. Confusion of ideas is thus avoided and teaching is simplified. The work is essentially practical, with an avoidance of theoretical discussion, and is based upon the author's many years of practice. The illustrations are numerous and generally excellent, many being original. Fault might be found with some of the pictures illustrating the conduct of normal labor, in which the patient is shown with her legs encompassed with ordinary stockings and the accoucheur without so much as a butcher's apron on to prevent contamination and to secure asepsis. Such minor details become important in a book intended for teaching undergraduates.

MANUAL OF GYNECOLOGY. By HENRY T. BYFORD, M.D., Professor of Gynecology and Clinical Gynecology in the College of Physicians and Surgeons of Chicago; Professor of Gynecology in the Post-Graduate Medical School of Chicago, and the Chicago Clinical School, etc. Third revised edition. Pp. 598. With 363 illustrations. Philadelphia: P. Blakiston's Son & Company, 1902.

The author has recast the contents of the book and added considerable new matter. It is a book which is essentially suited to the busy general practitioner, who has not the time to wade through the extended descriptions of the larger works of reference.

The contents are most admirably arranged for rapid reference, the use of copious marginal notes enabling the reader to tell at a glance the subject matter in the page. The illustrations are abundant and generally good, due credit being given when taken from other works. The author devotes two chapters to the subject of gonorrhea, giving the most modern views as to the important position this disease bears as an etiological factor in pelvic disorders. The chapter on lacerations of the perineum treats the subject rather too superficially for a proper understanding of this condition, but, on the whole, the author has succeeded in condensing a large amount of valuable information into a comparatively small space and in a most convenient form for ready reference.

PRACTICAL OBSTETRICS. A Text Book for Practitioners and Students. By EDWARD REYNOLDS, M.D., Visiting Surgeon to the Free Hospital for Women, etc.; and FRANKLIN S. NEWELL, M.D., Assistant in Obstetrics and Gynecology in Harvard University, etc. Pp. 553. Illustrated with 252 engravings and 3 colored plates. Philadelphia and New York: Lea Brothers & Company, 1902.

Of the great number of works on obstetrics that have recently been published, this book will find its place as a text book which elucidates the modern principles of the art in a condensed and practical form. One plan of treatment is usually given instead of a lengthy discussion of many methods, which feature will appeal especially to undergraduate students, as it avoids confusion. The chapters on obstetrical anatomy are too hurriedly treated to be of real use. The subjects of the management of labor, the obstetrical operations, and especially deformed pelves, are clear, concise, and well treated. The important topic of diagnosis is disposed of in about sixteen pages. Many of the illustrations are excellent; many are old friends, some are poor. The work of the publishers is excellent.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In twenty-one volumes. Vol. XXI. Pp. 845. New York: William Wood & Company, 1903.

The very remarkable advances in certain lines of medical thought during the two years that have passed since the completion of this encyclopedia have made its editor feel that a supplementary volume including these new discoveries would be welcome to those who possess the work.

Among the more important subjects considered are yellow fever, bacillary dysentery, the medical applications of the X-ray, the X-ray in the treatment of neoplasms, diseases of the lungs, diseases of the liver, diseases of the stomach, diseases of the urinary tract, diabetes, gout, rheumatism, and besides some twenty-five others. To condense all of this matter into the limits of a single volume has necessitated considerable editorial revision. All historical references and bibliographies have been omitted, and only the most necessary and practical matter retained.

A NURSE'S GUIDE FOR THE OPERATING ROOM. By NICHOLAS SENN, M.D., Ph.D., LL.D., C.M., Professor of Surgery, Rush Medical College, Chicago, etc. Pp. 127. W. T. Keener & Company, 1902.

This little book is an abstract of lectures delivered by the author to nurses, and is a guide to all the duties of a nurse in connection with operations, both in private and hospital prac-

tice. The technics of sterilization of dressings, instruments, and ligatures are put forth in clear, concise, and simple language and directions for the preparation of solutions of various strengths are given in both the metric and old systems. Numerous illustrations of instruments are given, and lists of the instruments and dressings necessary for all the standard operations are arranged so that the nurse can prepare every detail for an operation. It is a book which must necessarily be of value to every nurse.

THE TRANSACTIONS OF THE EDINBURGH OBSTETRICAL SOCIETY
Vol. XXVII., Session 1901-1902. Pp. 250. Edinburgh:
Oliver & Boyd, 1902.

This is the twenty-seventh volume of the transactions of the well-known Society, and contains the record of the meeting of the papers and discussions for the past year. Among the papers of interest may be mentioned one by D. Berry Hart on "The Nature of the Tuberosc Fleshy Mole"; "A Case of Spontaneous Rupture of an Apparently Normal Uterus at the Commencement of Labor," by R. Milne Murray; "The Separation of the Placenta, with especial reference to the Information derived regarding its Mechanism from Cases of Conservative Cesarean Section," by J. M. Munro Kerr; and "An Experimental Study of the Pelvic Changes produced by Separation of the Pubic Bones in Symphyseotomy," by Alfred C. Sandstein.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Treatment of Extrauterine Pregnancy with Viable Fetus. The chief case upon which F. Möbius (*Monats. für Geb. u. Gyn.* Bd. xv., H. 4) bases his paper was an ectopic gestation operated upon at the thirty-sixth week and the child saved. It died three weeks later of gastroenteritis. Serious hemorrhage occurred when the sac was opened, and especially when placental separation was attempted. To check this the blood vessels of the right side were ligated. The ureter was included and a uretero-ovarian fistula resulted. Three months after the interruption of pregnancy nephrectomy was necessary on account of multiple abscesses of the kidney and pyelitis. The patient recovered. When the child is living and viable Möbius would operate between the thirty-fourth and thirty-sixth weeks of pregnancy, keeping the mother under careful observation. He would leave the placenta, marsupialize the sac, and tampon the opening. In the case reported the corpus luteum was found in the left ovary, the left tube was closed, and the pregnant tube was on the right side.

Treatment of Pregnancy Complicated by Uterine Cancer.—Wagner (*Monats. für Geb. u. Gyn.*, Bd. xv., H. 5) describes a case of pregnancy of the carcinomatous uterus in which the latter was removed without difficulty, at the fifth month, by the vaginal route and without opening the membranes. After a part of the uterus had been drawn down, firm pressure upon the fundus drove the liquor amnii into that portion and permitted the rest to be extracted. As soon as carcinoma of the uterus is diagnosed, Wagner would operate, not waiting even if almost at term. Unless contraindicated, the vaginal route should be followed at any month. From the first to the fourth month the uterus should be removed, unemptied. In the fifth and sixth it may be necessary to rupture the membranes in order to reduce the volume. As soon as the child is viable, vaginal Cesarean section should be employed. Abdominal Cesarean section and abdominal or combined total hysterectomy are reserved for special cases.

Hydrostatic Test of Fetal Lungs.—As a proof of the unreliability of the hydrostatic test in determining whether an apparently still-born fetus has breathed, F. Hitschmann and O. T. Lindenthal (*Arch. für Gyn.*, Bd. lxvi., H. 2) record the pathological and bacteriological findings of a case. In this the presence of sufficient gas to cause the lungs to float was shown to be due to the presence of a gas-producing anaerobic bacillus. The writers hold that in order to make the test of value the absence of such bacilli must be proven.

Localized Uterine Contraction Simulating Fibroma.—F. Ahlfeld (*Zeit. für Geb. und Gyn.*, Bd. xlvii., H. 2) describes a case of supposed fibroma of the pregnant uterus. The woman died from hemorrhage caused by placenta previa, and the autopsy showed absence of the tumor which had apparently been present a few days before. The phenomenon is explained as being due to localized contraction of the uterine wall.

Pigment in the Skin and Urine during Pregnancy.—G. J. Wychgel (*Zeit. für Geb. und Gyn.*, Bd. xlvii., H. 2) finds by analysis that the pigment in the skin of pregnant women contains iron and that there is also an increased quantity of iron in the urine. He believes that this is to be explained by the presence in the maternal circulation of portions of chorionic villi with the formation of cytotoxins. According to the theory, these cells unite with the red blood cells, setting free hemoglobin which is eventually deposited in the skin or excreted in the urine.

Dystocia after Vaginofixation.—P. Mathes (*Monats. für Geb. u. Gyn.*, Bd. xv., *Ergänzungsheft*) reports this case. The woman, 31 years of age, had had two normal labors. Vaginofixation was then done for retroflexion, which recurred and was again treated by this operation. The third pregnancy was normal, but dilatation of the cervix was so slight during labor as to admit only one finger after pains had lasted twenty hours, assisted by the insertion of Champetier's bag. After Cesarean section the entire uterus was removed. The sharp anteflexion caused by

the vaginofixation and the resulting firm adhesion of the anterior wall of the cervix to that of the fundus had rendered dilatation of the cervix impossible.

Pubiotomy.—T. H. van de Veldé (*Cent. für Gyn.*, No. 3) warmly champions this procedure for increasing temporarily the pelvic diameters. His paper includes two case reports. He makes an incision from the spine of the left pubis downward and slightly inward to the outer border of the labium majus at the level of the vestibule. After reaching the pubis a cord is passed around the bone by means of a special curved needle, and with this a Gigli saw is drawn into place and the pubis divided. A separation of the fragments of from four and a half to five and a half centimeters was obtained. After extraction of the child the periosteum was sutured with strong silk, and the lower end of the wound is left open for insertion of a drain. A pelvic bandage is applied. Stitches are removed on the seventh day. The author prefers pubiotomy—or, as he terms it, hebotomy—to symphyseotomy because: the wound is removed from the vicinity of the bladder and urethra; the soft parts around the divided bone are thicker than around the symphysis, so a laceration extending from the wound to the vagina is less likely to occur; remoteness from the clitoris diminishes the probability of severe hemorrhage; the adductor longus and gracilis prevent too great separation of the halves of the pelvis; healing is more rapid in a divided bone than at a joint, and the chance of infection is less.

Postpartum Hemorrhage.—In 6,000 births at the Marburg Clinic no case of fatal hemorrhage from uncomplicated uterine atony in a previously healthy woman has been recorded. What at first appeared to be such a case is reported by F. Ahlfeld (*Zeitschrift für Geb. und Gyn.*, Bd. xlvii., H. 2). The patient was a 29-year-old IVpara who had had three abortions. In spite of rest in bed premature labor occurred at the end of the eighth month. Bleeding from the uterus began during the birth of the child and continued after expression of the placenta, in spite of firm uterine contraction, until death took place. The autopsy showed no wound of the genital tract; but examinations of the blood demonstrated complete absence of fibrinogen, which prevented the closure of the uterine sinuses by thrombosis. The child lived several weeks.

The treatment of postpartum hemorrhages recommended by Max Henkel (same) includes tamponade of the lower uterine segment for hemorrhage from atony of that region. For the control of bleeding from severe cervical lacerations, a preliminary compression of the abdominal aorta for ten minutes may assist subsequent repair of the injury. In six cases of cervical tears Henkel clamped the parametrium on each side of the uterus, including the uterine arteries, with museux forceps. These were removed after twelve to twenty-four hours. This method was also employed in a case of hemorrhage from uterine artery. The hooked forceps are applied to the tissues adjacent to the uterus.

after drawing that organ toward the opposite side by means of another pair, which is then removed. The points urged in favor of this method of hemostasis as opposed to tamponade of the uterus are rapidity of execution and asepsis.

Artificial Sterilization of Women.—Hugo Hübl (*Monats. für Geb. u. Gyn.*, Bd. xvi., H. 1 and 2) describes the various palliative and radical means of preventing conception. He gives these indications for their employment: Castration methods should be used only when disease of uterus or tubes demands removal of these organs. If it is necessary to excise the ovaries the uterus should be taken out at the same time. If Cesarean section is performed in a case of osteomalacia, subsequent pregnancy should usually be prevented by some method of sterilization less radical than castration. In some cases of osteomalacia immediate interruption of pregnancy is indicated; in these total vaginal hysterectomy should be the method employed, to remove the chance of another impregnation. As a palliative method of sterilization the writer advises an occlusive pessary or a condom. Aside from total extirpation the only reliable operation for sterilization is wedge-shaped excision of the tubes from the uterus, with suture of the uterine wound. All methods of ligation, division, or resection of the tube occasionally fail.

Albuminuria during Labor.—W. Zangemeister (*Arch. für Gyn.*, Bd. lxvi., H. 2) approaches this subject from the standpoint of personal investigation after a review of the literature. He states that diuresis increases at the end of pregnancy, falls during labor, then rises and again falls to normal. Albuminuria was observed in ten of one hundred cases examined once during the last three months of pregnancy, while it was found in as many as forty at one time or another during this period. Casts occurred in four to five per cent. Albumin without casts is found nearly as often in multiparæ as in primiparæ. Albumin and casts increase in quantity during the last two weeks of pregnancy. Small quantities in the last month are not pathological, but the presence of casts shows serious renal lesions. Casts are found with approximately the same frequency in the urine of multiparæ and primiparæ at the time of labor, and about in proportion to the amount of albumin. Occurring at this time they have no pathological significance. The increased albuminuria during labor is attributed to increased blood pressure.

Oöphorectomy during Labor.—M. Semon (*Monats. für Geb. u. Gyn.*, Bd. xvi., H. 3) reports a successful abdominal oöphorectomy during labor. A sarcomatous ovary obstructing labor was removed through an abdominal incision, and after closure of the latter a foot appeared at the vulva and a living child was extracted. Recovery. The writer's views concerning the treatment of labor obstructed by ovarian tumor are that any attempt at operative delivery before removal of the obstruction is an error; that this removal may be accomplished by moving the tumor, puncturing or incising it through the vagina, or by oöphorectomy

during labor. Reposition and puncture are not without danger the former on account of possible rupture. Puncture is possible only with cystic tumors; for dermoids free incision is indicated. Oöphorectomy during pregnancy gives the best prognosis for mother and child. It is the operation of choice. The abdominal or vaginal route must be selected according to existing conditions. The vaginal is applicable only with non-adherent, well-pedunculated cystic tumors. Cesarean section is reserved for cases in which abdominal oöphorectomy fails, those with inoperable tumors, when extensive firm adhesions exist, and those with intraligamentous development.

Prophylaxis of Puerperal Mastitis.—No case of suppuration of the breast after labor has occurred during two years at the Marburg Clinic while the following treatment, described by Ahlfeld (*Zeit. für Geb. und Gyn.*, Bd. xlvii., H. 2), was employed: Every other day the nipples and areolæ of the pregnant women were washed with water, dried, and touched with a ten per cent solution of tannin in ninety-six per cent alcohol.

Etiology of Puerperal Fever.—W. Zangemeister (*Zeit. für Geb. u. Gyn.*, Bd. xlvii., H. 3) attempts, through study of 1,440 labor cases, to discover the causes of severe infection and of ordinary fever and to determine whether they are the same, differing only in degree. By comparing the number of febrile cases among those examined with gloves only and those with bare hands, and showing the same percentage of febrile cases in each group, he excludes infection by the examining hand as the cause of puerperal fever. He found the same proportion of cases becoming febrile on the third day with as without the use of castor oil, so he believes constipation is not the cause. Studying the appearance of fever in cases with lacerations, he concludes that the mild fever of the puerperium is due to absorption of lochia contaminated by saprophytic organisms, and that aseptic and antiseptic methods thus control mortality but not morbidity after labor.

Cesarean Section.—The statement in a case report by G. Heurichius (*Arch. für Gyn.*, Bd. lxvii., H. 1), that it was the fourteenth Cesarean section performed at the Helsingfors Clinic since 1883, emphasizes the infrequency of contracted pelvis in Finland.

Transverse versus Longitudinal Incision in Cesarean Section.—In a protracted paper which concludes with the statistics of 119 published cases of Cesarean section with transverse and longitudinal incision, Fritz Curschmann (*Monats. für Geb. u. Gyn.*, Bd. xv., H. 2, 4, and 5) compares the respective advantages of this incision and the old longitudinal. In favor of the transverse he finds only that the placental site is encountered in from ten to fifteen per cent fewer cases than by the median longitudinal. The amount of hemorrhage from the wound in the uterine wall itself seems to be the same in both. In connection with this he describes a corrosion specimen of Hyrtl's which showed the situation, size, and course of the uterine blood vessels. Uterine contraction, arrest of hemorrhage, contraction of the cicatrix

adaptation and healing of the walls of the wound, and subsequent strength of the scar during a later pregnancy are results in which neither method is superior to the other. Adhesions to the adjacent loops of intestine occur more frequently with the transverse incision, and in cases of transverse presentation delivery may be difficult or almost impossible through this wound. For these reasons Curschmann concludes that the transverse fundal incision is not more advantageous than the time-honored median longitudinal.

Placenta Previa.—The paper by P. Strassmann (*Arch. für Gyn.*, Bd. lxxvii., H. 1) is an exhaustive study of placenta previa based upon the statistics of 3,085 labor cases from the Charité Poliklinik and 32,960 from the Charité Klinik, the former including 101 cases of placenta previa, the latter 144. Of the 144 cases 14 are omitted from the statistics as having occurred before 1882, when combined version was introduced. Of the remaining 231 cases 16 per cent were primiparæ. Other causes of placenta previa are frequent and rapidly succeeding pregnancies and preceding twin pregnancy. In 7 cases recurrence of placenta previa was noted. The fetus, examined in 131 cases, showed in 24.43 per cent a subnormal weight relatively to its length. This malnutrition is attributed to the abnormality of the implantation site and to disturbances of pregnancy from hemorrhage. The influences of the insertion of the cord, of the arrangement of blood vessels of the placenta, and of its morphology are fully considered. In 18 per cent labor occurred before the eighth month; in 42.4 per cent, in the eighth or ninth month; in 39.4 per cent, at term. An excess of liquor amnii was not found. Transverse presentation was observed in 19.34 per cent of 212 cases; breech, in 14.6 per cent. Of 63 cases tamponed, 34.9 per cent had fever and 7.93 per cent died from sepsis. The use of a colpeurynter is advised only when the fetus is viable and a living child is desired. Before the thirty-second week it should therefore not be employed. The mother suffers the double danger from hemorrhage incident to its insertion and after its expulsion until version is performed. Strassmann has had no accidents during manual dilatation. Combined version is the treatment most often employed and most highly recommended. Of 235 children 61.25 per cent were still-born. The maternal mortality was 9.52 per cent. The prophylaxis of a febrile puerperium consists chiefly in avoiding tamponade. Douches are indicated only when old blood clots with odor are present or questionably sterile tamponade has been performed. For the prevention of placenta previa he advises cure of endometritis, cervical lacerations, etc., and avoidance of too rapidly succeeding pregnancy by postponing coitus until menstruation has returned after delivery.

GYNECOLOGY AND ABDOMINAL SURGERY.

Total Abdominal Extirpation of the Carcinomatous Uterus.
—According to Krönig (*Monats. für Geb. u. Gyn.*, Bd. xv., H. 6)

the chief dangers connected with Wertheim's operation are necrosis of the ureter, post-operative cystitis, and phlegmon of the connective tissue. To avoid these Krönig fears to separate the ureters from the overlying peritoneum and leaves them attached to a broad strip of the latter. He operates as follows: Median abdominal incision; uterus drawn forward by forceps; ligation of ovarian artery at outer end of broad ligament, also of ovarian and tubal branches of uterine artery *en masse* near the uterus. The round ligament and ovarian artery are divided just internal to where the latter is ligated, and the broad ligament split into two layers. An incision is carried through the anterior layer forward and across the anterior uterine wall to meet a corresponding incision on the other side, and the peritoneal flap dissected up, and bladder separated from vagina. The posterior layer of the broad ligament is then incised parallel with the ureter, which remains attached to the parietal peritoneum where this is dissected free. The operation is continued according to Wertheim's technique. After removal of the uterus the anterior vaginal wall is sutured to the base of the anterior peritoneal flap and the free margin of the posterior peritoneal flap to the posterior vaginal wall. Placing a drainage tube running from the outer end of each broad ligament into the vagina, the ligament is closed over the tube on each side. The anterior flap, previously sutured only at its base, is finally drawn over the vaginal opening and its free border sewed to the peritoneum of Douglas's cul-de-sac. The drainage tubes provide for possible ureteral complications. They are removed between the sixth and tenth days.

Simultaneous Primary Carcinoma of Uterus and Stomach.

Krönig (*Monats. für Geb. u. Gyn.*, Bd. xv., H. 6) reports what he considers a case of simultaneous primary carcinoma of stomach and uterus. The patient was 52 years old. By total abdominal hysterectomy he removed a beginning carcinoma of the cervix. None of the regional lymph nodes were enlarged. Gastrointestinal symptoms soon appeared, and a tumor the size of a fist was found five weeks after the first operation. Partial gastrectomy and gastro-jejunosomy were performed and recovery followed. The regional lymph nodes showed metastases. Krönig holds that the stomach growth was too far advanced to have been secondary to the beginning tumor of the cervix. The ulcer measured eight centimetres in diameter.

Sarcoma of the Ovary.—In 295 ovariectomies performed at the Würzburger Frauenklinik, 20 cases of sarcoma of the ovary were found—a far larger proportion than has usually been recorded. Alfons Stauder (*Zeit. für Geb. u. Gyn.*, Bd. xlvii., H. 3) gives 11 case reports and discusses the statistics. Four of the twenty women were under 20 years of age. In considering the treatment he advises bilateral castration for apparently unilateral sarcoma of the ovary only in women over 40 years of age.

Metastatic Carcinoma of the Ovaries.—F. Schlangenhaufer (*Monats. für Geb. u. Gyn.*, Bd. xv., *Ergänzungsheft*) describes

eight cases of bilateral ovarian carcinoma, metastatic deposits from primary malignant disease of the stomach. He thinks that a large proportion of these bilateral carcinomata are metastatic. When the uterus, vagina, and mammae can be excluded the primary growth is to be looked for in the stomach, intestine, or gall bladder. The practical deduction drawn is that in all cases of bilateral solid ovarian tumors a careful physical examination should be made, particularly of the stomach.

Uterine Fibroids.—D. A. Abuladse (*Monats. für Geb. u. Gyn.*, Bd. xv., *Ergänzungsheft*) defends the conservative treatment of interstitial and submucous fibroids. He strongly favors conservative myomectomy, which he says broadens the indications for the removal of uterine fibroids.

Acute Torsion of Uterine Myoma.—C. H. Stratz (*Zeit. für Geb. u. Gyn.*, Bd. xlvii., H. 3) describes a case of acute torsion of the broad pedicle of a uterine myoma attached at about the level of the internal os. The patient was a nullipara of 57. The symptoms of torsion came on nine days before operation, and three days before the latter there were signs of peritonitis. The abdominal section showed that the circulatory disturbance had resulted in hematosalpinx on both sides and hemorrhages into the uterus and one ovary.

Vagino- and Ventrofixation of the Uterus.—A critical study of the methods employed and the results obtained in eight years at the Maria Theresien Frauen Hospital in Vienna in cases of retrodisplacement of the uterus is found in a paper by Eduard Dirmoser (*Monats. für Geb. u. Gyn.*, Bd. xv., H. 6). He discusses the history and technique of the Alexander operation as well as of vagino- and ventrofixation. The statistics are those of 69 vaginofixations and 76 ventrofixations.

Etiology of Hematocele.—Extravasated blood in the peritoneal cavity is usually rapidly absorbed. As in a case autopsied by Otto Busse (*Monats. für Geb. u. Gyn.*, Bd. xvi., H. 1), however, a hematocele occasionally forms. This occurrence he explains as due to the presence of fragments of clotted blood and admixture of foreign material, and partially to diminution of the absorbing power of the pelvic peritoneum by chronic inflammatory processes, which frequently are associated with tubal pregnancy.

Benign Epithelial Proliferation in Uterine Mucosa.—Anton Henge (*Monats. für Geb. u. Gyn.*, Bd. xv., H. 5), in examining curettings from two patients 44 and 49 years of age respectively, found proliferation of the lining epithelium of the corpus uteri without apparent cause. As there were no signs of pregnancy or of malignancy, he is inclined to lean toward the diagnosis of tuberculosis of the uterine mucosa.

Suppuration in the Round Ligament.—An unusual condition was met with by E. Lichtenstern and E. Herrmann (*Monats. für Geb. u. Gyn.*, Bd. xv., *Ergänzungsheft*). A suppurating area was found in one round ligament. There was no history of gonorrhea or of puerperal infection. It was probably the result

of infection of a thrombus or of a hematoma. The other genitals were normal. The origin of the infectious agent was not determined.

Diagnosis and Treatment of Exudates.—Dützmänn (*Monats. für Geb. u. Gyn.*, Bd. xvi., H. 1) claims good results from the hot-air treatment of pelvic exudates, both acute and chronic. In the acute the exudate becomes earlier ready for incision; in the chronic the exudate disappears. He also gives his observations upon the determination of purulency of an exudate by the white blood cell count. In cases of streptococcus infection he expects twenty to thirty thousand white cells in the blood; in infection by the gonococcus or bacillus coli, only eleven to thirteen thousand. A leucocytosis was always found when pus was discovered.

Carcino-sarco-endothelioma of the Fallopian Tube.—After removal of tumors of both tubes from a woman 51 years old. Otto v. Franqué (*Zeit. für Geb. u. Gyn.*, Bd. xlvii., H. 2) submitted the specimens to examination. Both showed epitheliomatous degeneration of the mucosa and sarcoma of the muscular layer, while an endothelioma springing from the blood vessels in the left tubal wall was also found.

Gonococci in Deep Layers of Fallopian Tube.—Emil Kraus (*Monats. für Geb. u. Gyn.*, Bd. xvi., H. 2) has been able to confirm the statement of Wertheim that gonococci are not necessarily confined to the superficial layers of the tubal mucosa. In his specimen they were found in the epithelium and stroma of the mucosa, in the muscular layers, in the periphery of the tube, and in the subperitoneal tissue.

Typhoid Bacilli in Pyosalpinx.—Joseph Koch (*Monats. für Geb. u. Gyn.*, Bd. xvi., H. 2) records the following case: At the age of 16 the patient had typhoid fever. At 28 she was operated upon two months after the onset of what appeared to be bilateral gonorrheal disease of the appendages. The tumors proved to be an ovarian cyst on one side, and on the other a pyosalpinx. The latter contained typhoid bacilli.

Ureteral Fistulæ and Wounds.—On the basis of seven new cases of ureteral fistula from the Bonn Clinic, W. Stoeckel (*Arch. für Gyn.*, Bd. lxxvii., H. 1) supplements a former paper with discussion of the more recent views. The chief cause appeared to be hysterectomy for carcinoma of the cervix. Stoeckel has observed spontaneous healing of a ureteral fistula, but rarely. In all cases of uretero-vaginal or uretero-uterine fistula he advises the use twice a day of douches containing lysol, lysoform, oxycyanide of mercury, bichloride, etc., to keep the vagina as nearly sterile as possible. The urine should be carefully watched and a beginning cystitis combated at once. If all ligatures and sutures around the fistula have gone and yet it does not heal in six to eight weeks, he would then do an implantation without delaying until infection might occur. The remainder of the

paper is devoted to operative methods, chiefly vesical implantation.

Prolonged Evisceration.—Guermonprez and Le Gueut (*Jour. des Sci. méd. de Lille*, Sept. 20) describe a case which shows the power which the peritoneum at times exhibits when exposed to infectious agents and traumatism. The woman had been operated upon for a suppurating dermoid cyst of the ovary. The sac was marsupialized at the lower extremity of the abdominal incision. Nineteen months later she was treated for a reducible ventral hernia by an abdominal bandage. A year and a half after this she was lying quietly, when, after coughing, she felt something warm upon the abdomen and discovered that the intestines had broken through the skin of the wound. After washing the intestines and covering with sterile compresses, manual reduction was attempted and failed. The symptoms of peritonitis subsided, leaving the mass of intestines firmly agglutinated. The dense adhesions could not be broken down, so the entire mass was replaced in the abdominal cavity, after making a fresh incision in the median line and sterilizing the hernia as carefully as possible. This was not done until eighteen days after the eventration occurred. Recovery was interrupted by peritonitis and broncho-pneumonia, but was eventually complete.

Laryngeal Herpes.—Bettmann (*Berl. klin. Woch.*, Sept. 8) has observed an interesting case of laryngeal herpes in a woman whom he had been treating for secondary syphilis. The bul-
lous eruption in the larynx was accompanied by herpes of the nose and neck. The laryngeal eruption did not recur, but herpetic eruptions, especially of the mouth, nose, and vulva, were frequently observed subsequently. All these eruptions appeared from five to seven days before menstruation. For this reason Bettmann classes it as herpes menstrualis.

DISEASES OF CHILDREN.

Bronchitis and Broncho-Pneumonia in Children.—E. W. Mitchell (*Arch. of Ped.*, Nov., 1902) says that one of the most troublesome class of patients to both general practitioner and pediatricist are those children who are continually "taking cold." The enormous mortality of such children from bronchitis and pneumonia when they are subjected to bad hygienic conditions is well known. In the general management of the children who take cold, the chief work is the education of the mothers in the feeding, clothing, bathing, exercising, etc. In the judicious management of all these items lies success. In private practice there are three mistakes which have to be frequently corrected: apartments are kept too warm, sleeping rooms are not sufficiently ventilated, and too much clothing is worn. The physician is often at fault in not giving the mothers sufficiently minute and exact instruction on such points as these. The mother, told that the child must be hardened, often goes to the extreme and exposes the child unduly, with disastrous results. A simple diet, pure air

for both day and night, systematic development of the muscular system are the cardinal principles in building up constitution and vigor. Delicate children, and particularly nervous children, need supervision as to their rest. The midday rest should be made a compulsory part of the day's programme. They should be put to bed early and allowed to sleep late in the morning. Next in importance for the upbuilding process is the bath. In the early weeks of infancy the regular bath may be followed by an alcohol rub. Later the bath may be finished by a dash of cold water, followed by brisk rubbing. As they grow older the cold sponge bath should be a regular part of the children's morning toilet. For older children who have the vigor to react thoroughly, the plunge or shower bath may be allowed and is often thoroughly enjoyed. Of medicinal measures the writer has little to say. If the various hygienic, sanitary, and hydriatic measures can be intelligently employed, but little medicine is needed. Cod-liver oil, iron, iodide of potash, and sometimes arsenic, are to be used in individual cases according to specific indications. Where there is enlargement of the lymph nodes a course of syrup of hydriodic acid or of syrup of iodide of iron is often beneficial. All drugging which interferes with appetite or digestion is to be avoided. The "open-air treatment" of tuberculosis is teaching both profession and laity to how much greater extent the open-air life is possible even in unfavorable climates than has hitherto been believed. If good for *cure*, how much better for *prevention*! As far as possible the class of children of whom we speak should have an open-air life with games, gymnastics, and physical culture regulated to their strength. One most useful measure for furthering the hardening process is going barefoot in summer. In the treatment of severe bronchitis and pneumonia the author uses the cotton jacket with the oiled silk covering. Alcoholic stimulants may be needed, but if the odor appears on the breath it means that alcohol is in excess. The hot bath is the most valuable measure in the treatment, reducing the temperature, quieting the nervous system, bringing the blood to the surface, and thus diminishing pressure on the overburdened right heart, and lessening the pulmonary congestion better than any counterirritant.

Cardiac Dilatation at Puberty.—Alfred Friedlander (*International Medical Journal*, Nov., 1902) says that during the early years of life the increase of the weight of the heart, though steady, is not very rapid. At the time of puberty, however, the rapidity of growth becomes much greater. Thus if we compare the volume of the heart with the width of the ascending aorta, we find that before puberty the ratio is approximately 140:50; after puberty, 290:61. In other words, the blood pressure is much higher after puberty than before. Broadly stated, the tissues grow more vigorously, respond more readily to stimulation in childhood and early adolescence than in later life. But, *contra*, the tissues of the young individual are more yielding

more apt to give way under strain, than is the case in maturity. Therefore if additional demands are made upon the heart of the growing child, hypertrophy—a physiological hypertrophy—will the more easily ensue. But, for the same reasons, if the strain and the demands upon the muscular power of the heart be too great, dilatation will the more easily occur. Under perfectly normal conditions, however, the heart is able to perform its additional work adequately. Unfortunately the conditions are often not normal. The bad effects of hereditary taint, of constitutional diatheses, the evil results of antecedent diseases of childhood or of chronic disturbances of nutrition, unfit the child for the period of developmental stress. These are the predisposing causes of the cardiac dilatation. Its exciting cause is usually to be found in direct muscular strain. It is just about the time of puberty that children begin to indulge in the more severe forms of muscular exercise, which they often push to extremes in spite of the warnings of fatigue. Difficulty in breathing, palpitation, pallor, even cyanosis appear. Treatment should consist in the first place of putting the child absolutely at rest in bed, on its back, for several weeks. In no other way can the work of the heart be so quickly minimized, in no other way can the heart so quickly regain its tone. During this period the diet should be light and nutritious, but should contain the minimal quantity of fluid, so that the volume of blood to be pumped can be reduced as much as possible. Liquid food—milk, soups, and broths—should be given in as small quantity as possible, not exceeding one and a half pints in the twenty-four hours. In the beginning, especially if there be great irregularity of the heart's action, digitalis is often of value, and strychnia is frequently of service at all stages. But it is more important to lessen the work of the heart than to stimulate the heart to doing an increased amount of work. And this is best accomplished by rest. The bowels should be regulated and anemia combated by ferruginous tonics. Even after the child is up and about again all severer forms of exercise must be forbidden for months.

The Child's Stomach in Digestive Diseases, The Function of.—Von Hecker (*Jahrb. f. Kinderhk.*, vol. lvi., No. 5) finds that resorption by the stomach occurs more quickly before the age of 4 years than after that age. The gastric function of resorption is most severely interfered with in acute gastroenteritis, next in dyspepsia, and only slightly in acute enteritis and colitis. In chronic diseases of the gastrointestinal tract resorption by the stomach is interfered with according to the severity of the disease. In acute attacks the function is usually quickly restored as soon as the acute symptoms cease. The chemistry of gastric digestion is interfered with in every disease of the gastrointestinal tract; least so in acute dyspepsia and acute, short attacks of enteritis, and most in acute gastroenteritis and chronic intestinal diseases. In acute colitis the chemical change in the gastric function is marked, while its resorptive power is satis-

factory. The severity of deranged gastric digestion is demonstrated by the absence of free hydrochloric acid, the presence of organic acids, and a weakly acid or even neutral reaction of the stomach contents.

Congenital Stenosis of the Small Intestine and its Operative Treatment.—Braun (*Beitr. z. klin. Chirurgie*, Bd. xxxiv.) has served a case in a baby six days old, in whom the atresia was situated ten centimetres above the ileo-cecal valve. Enterostomy was performed, but the child died. The blind ends of the intestine were united by a solid band two centimetres in length and in the lumen of the lower (blind) portion of intestine a necrotic piece of gut, about one centimetre long, was found. In this case, therefore, the stenosis was undoubtedly caused by invagination. The pathology and therapy of congenital intestinal stenosis are discussed and the literature reviewed. To the far no case has been saved by any known therapeutic method, which enterostomy is the most rational.

Contrasts Between Certain Common Diseases in Children and Adults.—J. Walter Carr (*Edinburgh Med. Jour.*, Oct. 1902) calls attention to special features more or less peculiar to early life, such as the readiness with which the temperature rises to often an alarming height; the disproportionate acceleration of pulse and respiration rates by any pyrexia; the instability and reflex irritability of the nervous system; the tendency of disease to generalization. The author does not think it necessary to enter into the subject of diseases almost peculiar to childhood, but wishes to consider diseases which are common to both children and adults, but which display some differences in early life.

1. *Acute Rheumatism.*—In a large number of cases joint trouble is neither so severe nor so extensive as in adults, but is often so slight as to be overlooked. The tongue and the urine are in no way characteristic, there is no sweating, and no more pyrexia than constantly occurs in children from most trivial causes. Rheumatism is exceedingly common in early life, and very serious, but should be considered at that time as a disease which attacks any or every part of the heart with possible joint complications. After 10 years of age rheumatic attacks begin to assume more of the adult type, though the joint affection and the sweating are still less marked, and the tendency to heart lesions greater than in later life. Other manifestations of rheumatism are common in children, though unknown, or at least much rarer, in adults, a fact which fits in well with the modern view that it is a toxemia due to a special micro-organism, and not merely an affection of the serous and synovial membranes. These are pleurisy, tonsillitis, rashes, subcutaneous nodules, and chorea. Another phase is a subacute condition in which the patient seems to be saturated with the rheumatic poison, so that it may be for weeks at a time, one manifestation has no sooner passed off than another supervenes. A marked and peculiar intractable anemia usually develops and headache is often

troublesome symptom. Salicylate of soda, salicin, etc., are far less efficacious in children than they are in adults. There is, in fact, no drug which seems to do much good in these cases of rheumatic toxemia. All that we can do is to give salicylate of soda or salicin, and perhaps alkalies, and to adopt the ordinary lines of treatment for any heart lesion which may be present—prolonged recumbency, iodide of soda, and strychnine or nuxvomica being probably especially useful.

2. *Tuberculous Disease of the Lungs.*—The starting point in children is often different, frequently being the root of the lung. The dissemination of the disease through the lungs is much more rapid and irregular than it usually is in later life. Cavities are not common, or at least are not very large. The physical signs are more or less different. They may be very slight even when the lung disease is most extensive. The symptoms differ in many respects; night sweats are uncommon, hemoptysis and tuberculous laryngitis are rare. The sputum is swallowed, causing gastrointestinal disturbances and intestinal ulcers. The bowels should be kept freely open, and perhaps the administration from time to time of small doses of an antiseptic purgative, like calomel, might tend to diminish the danger of intestinal infection.

3. *Heart Disease.*—Diseases of the myocardium are almost confined to adult life. Serious changes in the cardiac muscle, due to rheumatism, are, however, associated, as a rule, with endo- or pericarditis. Aortic disease is relatively uncommon in children, but mitral disease is exceedingly frequent. In adults we associate it, at any rate in its later stages, with bronchitis and edema of the lungs, cyanosis, dropsy, albuminuria, great irregularity of the pulse, and a tendency to hemoptysis. In childhood, heart disease is a wasting disease; compensation may be sufficient to enable the actual requirements of the different tissues and organs to be met, but is rarely adequate to provide for growth also; consequently wasting and anemia result, and at puberty, when growth is most rapid, the strain often proves too great, and death follows. Irregularity of the pulse is rarely produced by mitral disease in children up to the age of 12. The physical signs of valvular disease are much the same as in adults, except that precordial bulging is more frequently seen.

4. *Disorders of Digestion.*—The important part played by digestive disturbances in the diseases of infancy is recognized by all, but the frequency of chronic dyspepsia in later childhood is often overlooked. The children waste considerably, often have evening rise of temperature, and perhaps a hacking cough. Tuberculosis is frequently suspected in such cases, and the child "fed up" and dosed and its malady much aggravated. What is really required is careful regulation of the diet, fresh air, a mixture containing bicarbonate of soda and tincture of nuxvomica, with perhaps some tincture of rhubarb, and a dose of gray powder and rhubarb every second or third night to regulate

the bowels. Many other diseases could be mentioned which occur in childhood and in adults, such as typhoid fever, which is less serious in the former; acute laryngitis, which is much more severe; and many skin diseases, which tend to become more diffuse and more readily purulent.

Cretinism Treated with Thyroid Gland.—Ezra O. Price (*Pediatric Med. Jour.*, Oct., 1902) reports the case of a little girl 3 years who showed every sign of cretinism. The patient was put on thyroid-gland treatment, one five-grain tablet of desiccated gland being given three times a day. There were no unpleasant symptoms and after a month it was increased to two tablets given during the day, which dose has been continued regularly since. Occasionally five tablets have been given during the day for a short time. The constipation present was relieved within a week after treatment was begun. The turgor, which had not yet appeared, began to appear in about a month and the child showed many signs of improvement. After a year's treatment the child is apparently normal. Photographs illustrate this article and show the remarkable change in the child, both in its physical development and in the expression of the face. In the first picture there are absolutely no signs of intelligence; in the last the child looks as bright and intelligent as do other children of the same age.

Cyclic Vomiting in Children.—F. Valagussa (*Il Polichino*, Nov., 1902) concludes from his researches: That recurrent vomiting occurs in children with inherited uric acid diathesis. This disease forms a part of the pathology of metabolism, and should be separated entirely from diseases of the gastrointestinal tract. The vomiting occurs at varying intervals, and is greatly influenced both as to duration and severity by treatment. It is not a morbid entity, but a complex syndrome of which vomiting is the chief symptom. The pathogenesis of the recurrent attacks is in relation with an acid intoxication of the organism, as yet unknown poisons on uric acid patients. Recurrent vomiting may be considered as the equivalent of gouty attacks in children suffering from hereditary arthritis.

Echinococcus Pleuræ in Childhood, Contribution to the Knowledge of.—Leo Loránd (*Monatsschrift f. Kinderheilkunde*, vol. i., No. 1) details a case occurring in a boy 11 years old of good family history, whose illness began with emaciation and pain in the right side of the thorax. In the clear, serous fluid withdrawn by aspiration echinococcus hooklets were demonstrated with the microscope. Baccelli's method of treatment was used, 20 centimetres of a one per cent solution of corrosive sublimate being injected after 40 centimetres of the fluid had been withdrawn. Six weeks later suppuration of the sac was demonstrated by the symptoms and by the character of the aspirated fluid. A radical operation was performed and a large multilocular echinococcus cyst removed. The lung was found to be completely compressed against the vertebral column.

wound was drained for six weeks and then healed completely. In three months the boy was well. The source of infection was traced to two fox terriers with which the child played. The mother cyst was situated between the layers of the pleura and had no communication with the liver. A daughter cyst had ruptured into a bronchus. The author considers the Baccelli method indicated as the primary treatment in intrathoracic echinococcus cysts; but should suppuration of the cyst or pyopneumocystitis occur, only a radical operation can be expected to give good results.

Empyema in Children.—W. J. S. Bythell (*Med. Chron.*, Nov., 1902) concludes that empyema is common in children of all ages and is decidedly more frequent in boys than in girls. The disease resembles pneumonia in being more prevalent in spring and early summer. The pleura is infected in the great majority of cases by a process of direct invasion from a pulmonary lesion; the latter is usually a catarrhal pneumonia in children. In many cases which are apparently "primary," the source of infection is probably also an undiscovered patch of broncho-pneumonia. The micro-organism which is by far the most frequently present in the empyema of children is the pneumococcus. The clinical results of empyema depend to some extent upon the species of bacteria found within the pleura, the pneumococcal cases being on the whole the mildest. This micro-organism may, however, give rise to very serious complications, either by the direct invasion of surrounding viscera or by metastatic infection. The bacteriological examination of the pus gives other indications as to the clinical prognosis which appear to be of considerable value: (a) A small number of poorly stained micro-organisms which give feeble cultures usually denotes a good prognosis; (b) the reverse condition is not so frequently accompanied by severe clinical symptoms, especially when phagocytosis is well marked; (c) vigorous cultures are not in themselves a reliable sign of pathogenic activity. The bronchial glands are probably invaded by micro-organisms from the pleural cavity in every case of empyema. The organisms are sometimes also found after death in the mesenteric glands. With the exception of those cases in which there are tuberculous lesions of the pleura or lung, the best results may be expected from the resection of a rib with free drainage of the pleural cavity.

The Management of the Fat Percentage in Feeding Difficult Cases.—Thompson S. Westcott (*Arch. of Ped.*, Nov., 1902) in concluding his study of the subject emphasizes the following points: 1. In cases of chronic gastric or chronic high intestinal catarrh, in which underfeeding for a considerable time becomes necessary, the most satisfactory results may be obtained by the use of whey mixtures, in which the deficiency of proteids in ordinary modifications is supplemented by a high percentage of lactalbumin. 2. In many of these cases unusually low percentages of fat must be given, and for this purpose dilutions of milk

without cream in conjunction with a fat-containing whey the most expeditious means of increasing caseinogen and of limiting the fat percentage within the bounds of digestive tolerance.

Measles, Pathology of.—Brueckner (*Jahrb. f. Kinderheilk.*, vol. lvi., No. 5) concludes, as the result of his own experiments and a study of the literature of the subject, that cases of spinal and peripheral paralysis occur rarely in the course of an attack of measles, but relatively with greatest frequency after the anathematous stage is over. Spinal paralyses giving the picture of a diffuse myelitis are most common. The majority of reported have recovered, and nothing is known of their pathogenesis. From analogy with paralyses occurring after other infectious diseases the conclusion seems justified that at least spinal and peripheral varieties are due to the toxic action of measles as yet unknown cause of measles. Two cases are detailed, both ending in recovery.

Morbus Maculosus Werlhofii (Purpura Hemorrhagica) Case of, after Measles.—Falk (*Centralb. f. Kinderheilk.*, vol. lvi., No. 12) reports the case, occurring in a 4-year-old girl. The measles ran a rapid course, and was followed in two weeks by hemorrhages from the nose, mouth, gums, stomach, intestines, and kidneys. Petechial hemorrhages appeared on the face, trunk, extremities, lips, mouth, and pharynx. Ergotin was given by the mouth and subcutaneously. Recovery was complete in four weeks, but severe anemia remained. There was no family history of scorbutus or hemophilia. The cause of these hemorrhages is probably the action of toxins upon the blood-vessel walls.

Neurotic Inflammation of the Esophagus and Stomach in the Course of Scarlet Fever and the So-called Acute Infective Phlegmon of the Pharynx.—E. Fraenkel (*Virchow's Archiv.*, vol. clxvii., No. 1) describes the case of a 4-year-old child who died of scarlet fever, whose entire esophagus and stomach, excepting only a small area under the cardia, were in a state of necrosis and ulceration, resembling the condition which follows ingestion of a caustic. Another case of marked ulceration involving the lower half of the esophagus occurred after scarlet fever in a girl 18 months old, and an early stage of the process was observed in a girl of 5. Microscopic examination showed that the process was one of necrosis with suppuration, and streptococci in large numbers were demonstrated in the diseased areas. The process is to be regarded as a secondary one, due to the abnormal condition of the tissues of scarlet-fever patients. The streptococci undoubtedly came from the surface of the gastric mucous membrane.

Neglected Results of Infantile Paralysis.—S. W. Kohn (pamphlet) presents the case of a child of 5 years who had suffered from infantile paralysis at the age of 1 year. The condition was typical of the bad results of the disease, namely, neglected, contraction of the flexor muscles of the thigh and

taken place. These contracted tendons and also the tendo Achillis the author released by tenotomies, so that the child was able to take a position with both soles on the floor, the thigh better extended, and the lordosis improved. Braces were supplied to aid the muscles to support weight and control position. The limbs being now in a proper position for locomotion, active exercise, supplemented by hot bathing and massage for several weeks, began to develop them and increase their strength, so that when last seen before his departure to his home in the country the boy could walk fairly well. Such a case should, if possible, be supervised by the surgeon for months, or better for years, to prevent relapse by carelessness in adjusting braces, or by leaving them off too soon, and to insist upon the long-continued and faithful employment of bathing, massage, and, if convenient, electricity. The best time to repair damages and prevent bad results is soon after the illness, but even neglected cases should be given a chance. Notwithstanding that months or even years may have elapsed, some improvement may be accomplished. The author would not even be deterred by the presence of the reaction of degeneration six or nine months after the illness.

Persistent Ductus Arteriosus Botalli, Contribution to the Diagnosis of.—Dresler (*Jahrb. f. Kinderhk.*, vol. lvi., No. 5) has observed three cases, all in female children, two aged 1 year and the other 12 years. The Röntgen ray picture confirmed the size of the heart as outlined by percussion in every case. In the two infants the heart was not enlarged, and, as cyanosis is absent, the diagnosis must be made entirely upon the auscultation signs. These are: a systolic murmur over the pulmonary artery with a palpable thrill, distinct second pulmonary tone, and transmission of the murmur into the carotid arteries, especially the left. The murmur in the present cases was also transmitted to the interscapular region. In the older girl the heart was enlarged as to both sides, and the pulmonary artery was wider than normal. The presence of a band-like area of dulness along the left sternal border gave this case the typically classic picture of patent ductus arteriosus. The transmission of the murmur over the carotids differentiates it from that caused by stenosis of the pulmonary orifice.

Pneumonia in Children.—J. P. Barber (*Arch. of Ped.*, Nov., 1902) considers that the mortality of this disease is overrated in the text books, owing to the fact that the writers derive their experience chiefly from hospitals, asylums, and consulting practice, and therefore fail to see the disease in its milder form. Holt has a mortality of 65.5 per cent in all cases, and 49.5 per cent in uncomplicated cases of broncho-pneumonia. Pepper says the mortality in children under 5 years of age is 30 to 40 per cent. Morrill gives it as 75 per cent in children between 2 and 3 years. The author has records of 165 cases of pneumonia in children under 5 years of age, seen in private practice. Of these 17 cases were diagnosed lobar and 148 cases

broncho-pneumonia. Of the 17 cases of lobar pneumonia, 12 died, 81 per cent. Of the 148 cases of broncho-pneumonia, 12 died, 8.1 per cent. There were 131 cases uncomplicated, except by simple bronchitis, with 5 deaths, 3.7 per cent. There were 17 complicated cases with 7 deaths, 41 per cent. Ten of these had whooping-cough, with 5 deaths; 5 had measles, with 1 death; 2 had typhoid fever, with 1 death. The duration of broncho-pneumonia, as seen in private practice, is shorter than the text would lead one to believe. In 50 cases of recovery tabulated by Holt, only 17 recovered before the tenth day, and 25 between the tenth and twenty-first days. In 114 cases seen by the author, 100 per cent ended before the tenth day. Of these only 3 died. The statistics of this disease, as of many others, should be written by the general practitioner.

The Relation of Poverty and Disease (*British Med. J.* Aug. 16, 1902).—In a discussion held on this subject Seeboard Rowntree stated that in the course of his investigations he weighed and measured 1,919 school children. Roughly speaking, one-third of these were drawn from schools in the poorest part of the city, one-third from a board school, representing the middle section of the working classes, and one-third from a higher grade school attended by the highest section of the working class. It was found that the average height and weight of the boys and girls in the poorest section was at all ages less than the height and weight of children in section 3 (that is, the highest class of labor), and less than the general average height of the children in section 2, which was between that of the other two sections. The average height of the boys when they leave school at 13 is less by $3\frac{1}{2}$ inches in the poorest section than in section 3, while their weight is 11 pounds less. There is a similar though somewhat smaller difference in the case of the girls. As to the general physical condition it was found that while in the higher grade school 27 per cent of the boys were classed as "very good" and only 11 per cent as "bad," in the poorest schools only 2.8 per cent were "very good" while no less than 52 per cent were classed as "bad." The "bad" children presented a pathetic spectacle; all bore the mark of the hard conditions against which they were struggling. Puny and feeble bodies, dirty and often sadly insufficient clothing, sore eyes, in many cases acutely inflamed through continued want of attention, filthy heads, cases of hip disease, swollen glands—all these and other signs told the same tale of privation and neglect. The seriousness of this low physical standard among the children of the poor is emphasized when the large proportion of children who are in poverty is realized. The life of the laborer is marked by five alternating periods of want and comparative plenty. During early childhood, unless his father is a skilled worker, he probably will be in poverty; this will last until he, or some of his sisters or brothers, begin to earn money and thus augment their father's wage sufficiently to raise the family above the poverty line. Then follows a period of comparative

plenty, when he is earning money and living under his parents' roof. This may continue, after marriage, until he has two or three children, when poverty will again overtake him. This period of poverty will last perhaps for ten years, that is, until the first child is 14 years old and begins to earn wages; but if there are more than three children it may last longer. While the children are earning, and before they leave home to marry, the man enjoys another period of prosperity, possibly, however, only to sink back again into poverty when his children have married and left him, and he himself is too old to work, for his income has never permitted his saving enough for him and his wife to live upon for more than a very short time.

A laborer is thus in poverty and therefore underfed:

- (a) In childhood, when his constitution is being built up.
- (b) In early middle life, when he should be in his prime.
- (c) In old age.

It should be noted that the women are in poverty during the greater part of the period that they are bearing children.

In view of what has just been stated we shall not be surprised to learn that, while the proportion of the total population who are living in poverty is 28 per cent, the percentage of children so living is considerably higher. No less than 38 per cent of the children in York between 5 and 15 years of age are living below the poverty line.

Scarlet Fever Arising after Operations on the Throat.—J. W. Washbourne (*The Clin. Jour.*, Oct. 15, 1902) says that it is by no means uncommon to find scarlet fever arising after an operation on the throat or nose. He reports five cases of this occurrence and says that there are two possibilities in regard to them: the one, that the operator introduced the scarlet-fever virus on his instruments or fingers; and the other, that the virus was present in the throat at the time of the operation, and that it gained entrance through the cut surface. The period at which the rash came out in almost all the cases shows fairly definitely the causal connection between the operation and the attack. The case in which scarlet fever had previously been in the house suggests that the child had the virus in its throat ever since the occurrence of the scarlet fever. When one remembers that pathogenic bacteria, such as the diphtheria bacillus and the pneumococcus, are frequently found in the mouths of healthy individuals, there is no reason why the virus of scarlet fever should not also be present. Indeed, if this were so, it would explain a great many of the cases of scarlet fever in which the source of infection cannot be found.

Talipes Equinovarus.—J. P. Mann (*Medicine*, Sept., 1902) believes that no *congenital clubfoot* should be operated on until the child has learned to walk, which occurs usually from the twelfth to the twentieth month after birth. With skilful manipulation, and, if necessary, retentive apparatus, many cures can be effected when there is a slight deformity; severe cases, however, require,

besides operation, mechanical treatment both previous and subsequent thereto. Some children with clubfoot are not of robust build, and will become victims to some of the infant malady, and thus early operations are rendered useless. Why add surgery from operation and anesthetic to the already too long gauntlet of children's enemies? Mechanical treatment, judiciously selected and applied, will never cause a death; an operation, however skilfully performed, may be the last straw under which the little one sinks into an early grave. When a child can walk in addition to suitable apparatus, its body weight very materially contributes to the retention of the foot in the corrected position. A pressure of from fifteen to thirty pounds, controlled by mechanical means constantly acting while the patient stands erect, is without doubt a powerful correcting agent. Further, it must not be forgotten that many cases are assisted to a cure by properly directed muscular action. The infant's foot is so small, and its tissues are so tender, that in operations done too early, unless the surgeon can make frequent visits and the parents are more painstaking and intelligent than usual, it is very difficult to avoid either a partial or complete relapse, even when apparatus is worn. The failures, one excepted, witnessed by the writer, resulted from operating too early, from neglect of treatment, or they occurred where open section was done. In the exceptional case a concurrent scarlet fever, which began a day or two after operation, necessitated the cessation of further efforts to correct the clubfoot.

Scarlatina Hemorrhagica.—Vivian Chastel de Boinville (*Lancet*, Aug. 9, 1902) reports a case the interesting features of which was that the hemorrhagic symptoms did not appear at the onset of the disease, as in an ordinary case of this disease, but at a period when convalescence was to be expected. In other words, a profound toxemia set in at a time when it was to be supposed that antitoxin in the ordinary course of events would be forming and immunity becoming established. Can it be, queries the author, that Nature had, as it were, surpassed herself in the process of healing, that the antitoxins had become excessive, that a "reactionary antitoxemia," if one may use such a term, had set in? Or can it be that after the supposed toxins had been sufficiently eliminated to permit of a fall of temperature and partial recovery, a fresh supply of toxins hitherto combined with other material, or otherwise rendered inert, had suddenly been let loose in the blood and had set up a secondary toxemia? The case terminated fatally.

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ORIGINAL COMMUNICATIONS.

REPORT OF THREE CASES OF RUPTURE OF THE UTERUS DURING LABOR;

AND A CONSIDERATION OF THE TREATMENT BASED ON TEN CASES.¹

BY

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RUPTURE of the uterus during labor is not as rare an accident as is generally believed. The statistics given in text books are unreliable. In 4,420 consecutive labor cases in the service of the Chicago Lying-in Hospital Dispensary there have been only 2 deaths, and these were due to rupture of the uterus during labor. The writer has seen 9 cases of rupture of the uterus sub partu, and one other occurred in his service during an absence. Three of these cases will be briefly reported and deductions made from a review of the ten.

CASE I.—Ipara, in the service of the Chicago Lying-in Hospital, aged 21; previous history of no significance; normal pelvis. Labor began October 12, 1901, at 7 A.M., and pains continued

¹Read before the Chicago Gynecological Society, December 19, 1902.

until the next day, when, at 9 A.M., the membranes were ruptured. The uterine contractions were strong, the position L.A., yet no advancement was made. Patient was becoming exhausted, showed a peculiar pale, yellowish tinge in her countenance, but her pulse was good. At noon of the same day, forceps operation was done, under writer's guidance, by the interne. Episiotomy was necessary, and the delivery was easy, the child living. A severe hemorrhage followed and necessitated the delivery of the placenta. An internal cervix tear was determined, but, since the bleeding was profuse, there was no time to investigate its extent, and the utero-vaginal tract was firmly packed with lysol gauze. After the patient was put to bed severe symptoms of shock developed. Examination showed the uterus pushed up toward the liver by a firm mass above the pubis. This mass was hard, knobby, and evidently the gauze which had been packed into the cervix rent, seeming to be almost up against the skin. As there was no external hemorrhage and the patient seemed to hold her own, we decided to wait. The woman rallied slowly from the shock and recovered quickly. The gauze was removed in forty-eight hours, and on discharge no scar nor anchoring of the uterus could be determined.

That there was a rupture of the uterus in this case there is no doubt, but whether it was complete or not cannot be settled. The rupture probably occurred before the forceps operation and explains the hemorrhage which took place. The tamponade, therefore, was just the right treatment.

CASE II.—Mrs. R., in the service of the Chicago Lying-in Hospital Dispensary; IIpara, Jewess, aged 34, normal pelvis. Patient had puerperal fever in her last confinement, following injuries the result of brutal attempts with the forceps. Shortly after recovery from this three-months course of fever and suppuration, she became pregnant. Labor began between 1 and 2 A.M., the pains at first being strong and then weaker. She sought for medical aid at 3:20 A.M., and the interne arrived at 3:45 A.M. Before the interne arrived the waters had broken and an anterior prolapsed, whereupon the patient went to bed. On arrival of the interne the woman was in collapse, pulse 120 and hardly perceptible. Dr. Holmes was sent for and arrived at 5 A.M., and the writer following shortly after. The child lay scapula dextra posterior. Rapid decapitation was done, trunk and head easily delivered; then the placenta was removed from the cavity of the large hematoma at the left of the uterus. There was a transverse

verse lateral tear fully five inches long, to the left, above the cervix. The broad ligament was unfolded to cover a large hematoma, and whether this had ruptured into the peritoneal cavity or not we could not tell. Trial to sew up the rent failed because the field was inundated with blood, and, as the patient was dying, the uterus and rent were packed with gauze. Death occurred in thirty minutes.

CASE III.—Mrs. J., seen in consultation; Iipara, aged 26. Labor normal; diagnosis of O. L. P. was made and manual attempts to correct the position instituted. Failing three times in this, four attempts with forceps were made, alternating with five trials of version. The operations lasted about five hours altogether, and the child died during this time.

On arriving at the case the patient was in bad condition, pulse 160. She was in continuous pain, with great restlessness and anxiety. There was some hemorrhage from the vulva, which was swollen and black, each labium being the size of the wrist. The vagina was torn from the bladder, and it, with the cervix, hung in purple shreds. The finger passed up between the bladder and the uterus to the peritoneum. Head in O. D. A. and already crushed; could feel the bones crepitate; feet and cord alongside head. Craniotomy with trephine, extraction of head with cranioclast, easy; shoulders gave trouble, wherefore both clavicles were cut, but it was necessary to cut the sternum before the child could be extracted. Removed the placenta at once by hand, and discovered, in addition to the other lacerations mentioned, a large rupture of the right side of the lower uterine segment extending into the broad ligament to, but not through, the peritoneum. Passing across the space of this rupture could be felt strands of the subperitoneal connective tissue; anteriorly the round ligament passed across the vault, naked, but not torn, and above the contraction ring the peritoneum was dissected off the uterine body to the extent of two inches. A large amount of blood clots was evacuated from this space and a moderate hemorrhage followed.

The patient, although this whole procedure did not take twenty minutes, was in awful shape, her pulse being 180 when it became palpable. We feared she would die on the table, so the cavity of the hematoma was lightly packed with gauze, also the vagina, and as quickly as possible the patient was put to bed. She rallied after heat and stimulants were applied. A long course of fever followed, the cervix, parts of the vagina, and

base of the bladder sloughed out, a vesico-vaginal fistula developing. Large exudates formed on both sides of the uterus. prolonged high fever, profound sepsis, but gradual and complete recovery, save for immense scars in the pelvis.

The other cases of rupture of the uterus referred to were briefly as follows:

CASE IV.—Rupture after head delivered, during delay in traction of shoulders, and perhaps as a result of the manipulation. Expectant treatment. Death from peritonitis.

CASE V.—Spontaneous, complete rupture, in face presentation. Laparotomy; removal of fetid child and placenta. Amputation of whole uterus. Death in three days; sepsis.

CASE VI.—Rupture of uterus during instrumental dilatation for hemorrhage during pregnancy; escape of four-months fetus under peritoneum between bladder and cervix. Removed fetus, tamponed cavity; recovery.

CASE VII.—Rupture of uterus in neglected occipito-posterior position. Easy forceps; tamponade of large hematoma, which ruptured during great restlessness of patient. Died of shock and hemorrhage in forty minutes.

CASE VIII.—Rupture of uterus through bladder, vagina, and peritoneal cavity. Literally deserted by the physician who delivered her. Died while writer came into room; shock and peritonitis.

CASE IX.—Incomplete rupture occurring during a version. Living child. Tamponed rent, which was three inches long. Smooth recovery. Patient delivered twice since without difficulty.

CASE X.—Rupture occurring during transportation to the hospital. Delivery from below, tampon, and stimulation. Died six hours from shock and hemorrhage.

Of these ten ruptures of the uterus, only three were in the practice of the writer, the rest being consultation or midwifery cases. The three cases of the writer recovered without any complications, and two of these are known to be well.

In considering ruptures of the uterus there must be a sharp distinction between the complete and incomplete, the latter being tears that extend to, but not through, the peritoneum. The prognosis in incomplete tears is quite good, most of the women recovering; while with complete ruptures the majority of patients die, whatever be the mode of treatment.

The most successful method of dealing with incomplete r

tures is the tamponade of the rent. Gauze is lightly packed into the cavity under the peritoneum, taking extreme care not to injure this delicate covering. If the hemorrhage is profuse the gauze packing will probably not stop it, even if strong counter-pressure from the abdomen is made. It is usually impossible to control hemorrhage from below, and in these cases the abdomen must be opened and the broad ligaments and vessels clamped from above.

In the treatment of complete uterine rupture there are six methods to choose from, viz.:

1. Delivery of the child from below, and expectancy; ice bag on abdomen, ergot, opium—*i.e.*, symptomatic treatment.

2. Delivery of the child from below, tamponade of the rent and the uterus; then same as No. 1.

3. Delivery of child from below, sewing up rent as far as possible, and tamponade of the remainder.

4. Vaginal delivery, followed by extirpation of the uterus from below.

5. Laparotomy; removal of child and placenta; suture of uterus.

6. Laparotomy; removal of child, etc.; partial or complete extirpation of the uterus.

The first four methods presuppose the possibility of delivering the child from below. This is not always possible, or it may be inadvisable because of the danger of increasing the uterine lacerations. In cases of hemorrhage uncontrollable from below, and in cases of highly contracted pelvis, the laparotomy may become necessary. What to do with the uterus when the child, etc., have been removed depends on the conditions. If the case has been treated in a hospital and aseptically, the uterus may be closed with sutures or drained from below. If there is any suspicion of sepsis, the whole uterus should be removed, the peritoneum closed, and the subperitoneal space drained per vaginam. It is a question if the peritoneal cavity should be drained.

Rupture of the uterus is an accident that occurs almost always at the home, and it is a complication that should, if by any means possible, be treated where it occurs. No case of threatening rupture of the uterus should be transported from place to place, and if the patient is to be removed from bed to table great care and gentleness are necessary. One of the cases re-

ferred to died as a result of uterine rupture that took place during transportation by ambulance over rough pavements.

Since laparotomy is a very formidable operation in a private house and requires several hours for proper preparation, the accoucheur is right in choosing a method of treatment which will most quickly deliver the child, stop hemorrhage, and get the patient into bed. This is all the more right since some large statistics¹ show that such courses offer a better prognosis than abdominal methods, and other statistics show as good results with either method.²

Of the four methods of treatment in which the child is delivered from below, that offering the best results is the paravaginal suture and drainage of the peritoneal cavity and the site of rupture. Even in septic cases simple drainage offers much hope, but here the vaginal extirpation of the uterus is coming into vogue, and when the hemorrhage is slight the latter operation may be practised.

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THE TREATMENT OF PLACENTA PREVIA.*

BY

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THE management of placenta previa is a very serious business. In obstetrical practice nothing is more so, not excepting that of puerperal convulsions, now so well understood in its pathology and treatment.

Very properly may it be said that there is no fixed treatment applicable to all cases of placenta previa, at all times and under all circumstances. Treatment needs to be prompt and vigorous, directed, actuated, of course, by intelligence, skill, and courage. The wise obstetrician will adapt his treatment to individual cases and to individual conditions as found.

In a word, it is too true that there is no safety to the mother

¹Forné: *Etude comparée des diff. méthodes de traitement utilisées dans les ruptures de l'utérus*. Paris, Steinheil, 1900.

²Cholmogoroff: *Archiv für Gyn.*, 1895, Heft 1.

^{*}Read before the Cincinnati Obstetrical Society, December 15, 1900.

until delivery has been effected, by means natural or artificial; even after this event a complete safety is not assured. The two chief dangers to the mother are loss of blood and septic infection; to the child the risks of its life are greater. The chief cardinal principle of treatment, then, is: the utilization of means to prevent and to control undue hemorrhages and septicemia.

A patient who is suddenly and unexpectedly once attacked, in the latter part of pregnancy, with hemorrhage, although slight, should take the recumbent position; for, unavoidable as is this kind of uterine hemorrhage during pregnancy, still, in a measure at least, it is provoked by some bodily exertion and in lifting, coughing, or sexual intercourse. Its occurrence at any time in the latter part of pregnancy awakens the need of an appropriate physical examination to determine the conditions of the cervix uteri, the presence and the degree of the abnormal presentation of the placenta, the position and the presentation of the child *in utero*, as well as its life.

If the loss of blood is slight, and if there are physical evidences of this unnatural presentation of the placenta being lateral and marginal, or partial, and if the contractions of the uterus are mild, naught more, it seems to me, need be done than to irrigate the vaginal canal with a copious quantity of hot sterilized water, sublimated (1:5000), or medicated with creolin or boric acid. If labor pains are commencing, the firm application of a clean abdominal bandage will stimulate further these contractions and aid to press the presenting portion of the fetus more thoroughly against the dilating cervical canal and lower segment of the uterine walls, now bleeding.

Quite constant attention is required in placenta previa, to await further developments and be prepared for emergencies as they arise. If Nature is acting, though feebly, facilitate her action. The hot douche and the abdominal bandage so act.

The vaginal tampon, it seems to me, need not now be employed unless the hemorrhage continues or repeats itself, provided always the physician's services are near at hand. But preparations ought invariably to be made for the immediate use of this most useful means when needed. There is a way to tampon and a way not to tampon. No one, in these days of aseptic midwifery, would think of utilizing pieces of old towel, sheet, or skirt for tampons. The modern obstetrician always carries with him an abundance of sterilized gauze, made antiseptic with some of

the medicinal agents referred to. The hemorrhage returning severe, the tampons are at once to be utilized. After the vagina and the cervix are once more irrigated with hot water, a large Sims speculum, or two, separate the vaginal walls and bring in view the lower cervix. The patient is in the Simon position. The soft parts are mopped dry as practicable, and the cervical canal is packed full and firmly with the chosen gauze, placed between its walls and the presenting part of the fetus. Further packing in the vagina is done to keep the above in situ. These packings of antiseptic gauze in long strips are allowed to remain in place from one to twelve hours—the shorter time if the uterus is active, the longer time if no contractions are noticeable. This means is to be repeated once and again until needed dilatation is secured; none ever remaining in the vagina longer than twelve hours, because of the danger of septic contamination.

An early rupture or rupturing of the membranes helps the descent of the child and stimulates the uterus to an increased activity. Bleeding from the uterus to an appreciable extent becomes impossible after such an adjustment of the gauze packing. Dilatation of the cervix probably will take place and the uterus almost surely is brought into action. The membranes, now ruptured artificially, if necessary, on the withdrawal of the tampons, and after repeated irrigation or aseptic mopping. The cervix once moderately dilated and dilatable, the presenting part of the child can then well be detected, and the hemorrhage is in most instances controlled. No more active treatment ordinarily is required in lateral placenta previa.

Now, what has the tampon done? Stopped hemorrhage, effected dilatation, provoked contractions. If further delay and danger demand active interference the forceps may be brought into play, the head presenting; or a foot is turned down, the breech presenting. Should podalic version, by a combination of internal and external manipulation, for any cause be executed, the hips of the fetus are brought down to, and allowed to rest on, thereby compressing the bleeding vessels. The whole vaginal and cervical canal are filled; the breech acts as a tampon. Further delivery is not hurried, Nature herself usually finishes the completion of expulsion. This method of procedure has been extensively and successfully used in Germany in the hands of Brehm, Hofmeier, and Lomer. Excellent practice it is. On the point of the propriety of podalic version, let me remind

members of this Society of the increased dangers under circumstances just mentioned. Every version, done as carefully as possible, is attended by some shock to the nervous system and some loss of blood. This patient, now greatly exhausted by profuse hemorrhages, is ill able to withstand either. Death may follow directly from either or both combined, when such effects would be almost inappreciable under ordinary conditions. Then postpone version, if it is safe.

Abnormal presentations of the fetus are relatively more common in cases of placenta previa, because no doubt labor is so often then premature, or because the presenting placenta mechanically displaces what otherwise would be a normal presentation.

Permit me at this time to refer to a quite common accident to the maternal soft parts, in consequence, I think, of undue haste in the application of the forceps or the performance of podalic version, the cervix dilatable but not dilated, viz., the creation of a deep cervical rent, almost always left lateral, wherein the circular artery of the cervix is ruptured, bleeds very freely, enhancing the dangers of this antepartum hemorrhage of placenta previa. An immediate stitching of the rent parts, of course, is the only thing to do. The greatest danger is that the rupture may not be suspected or detected. Personally I have but little confidence in the use of any rubber dilator, Barnes or Charpentier, either to induce labor or to dilate the cervical canal. I have depended exclusively on my larger metallic dilator and the tampon or the fingers.

The mention of the name of Barnes—that world-wide, far-famed English obstetrician—brings to mind his efforts in the detachment partially of the placenta in these cases. I have seldom satisfactorily used any means to separate the placenta, except when it was centrally located. Then its detachment was a matter of necessity. In fact, in at least two cases of complete placenta previa, seen several years since in consultation, the placenta was loose in the vagina, having been almost completely spontaneously detached. Forceps were used in these cases, mothers recovering.

It seems to me that Barnes' method is especially indicated for cases of complete implantation of the placenta (entirely over the os uteri), while waiting for dilatation. With hand in the vagina, and one or two fingers placed within the uterine cavity as far as they will reach, insinuated between the placenta and the

uterine walls, they are swept around in a circle to separate the placenta, where attached to the cervix, on that side where separation has spontaneously begun, or where the attachment is the least extensive. Complete the separation on that side, hook it down, and place it closely against the opposite side. The cervix then retracts, the membranes are ruptured, and delivery is hastened. Other methods of placental separation are some based on the same principle. The separation of the placenta as just described is far better for mother and child than to go through it for the performance of any artificial delivery.

Dr. Zinke has advocated the availability and desirability of the operation of Cesarean section in cases of central placenta previa, with an os closed, rigid, and hemorrhage profuse in primigravidæ. Under the following circumstances: undilated cervix, hemorrhage uncontrolled (by the firm application of the uterine ponade), child at term and living, patient with normal temperature (non-septic), not greatly reduced from loss of blood, and environments favorable for, the Cesarean section might be seriously considered. I will not go so far as to affirm that it is never to be done, but I do believe that such favorable conditions as mentioned are rare indeed. As the profuse hemorrhage suddenly happening makes such a patient a very unfavorable subject for surgery; and as she, when seen, almost always has been exposed to manipulative measures to infect her; and as the lower uterine segment in such cases is in a bad condition for incision; and as the child may not be viable, it seems to me that the desirability of an abdominal section under such circumstances is small indeed. Cesarean section, therefore, in placenta previa must have an extremely limited field of usefulness.

Under all of these and other circumstances in which we encounter grave conditions in obstetric practice, while we do not to forget that we are having in our hands two lives, the mother and her offspring, the life of the former ought always to receive paramount consideration.

Any complete separation of the placenta—Simpson's method—will arrest the hemorrhage. This method usually ignores the life of the child. Certainly then it ought, for the most part, to be used only when the child is dead or is not viable, or when great exhaustion of the mother contraindicates delivery by version.

Ergot has a limited use in this disease, more for the purpose of stimulating contractions after dilatation has occurred, than before if version is reasonably entertained; but it should

always be given post partum in this disease, and the recumbent posture ought to be prolonged for several days beyond that for normal deliveries.

To avoid septic infection let us bruise or tear the soft parts as little as possible; see that there is retention of no fragments; secure efficient postpartum contractions of the uterus; and, above all, observe strict aseptic and antiseptic precautions. Undue losses of blood invariably augment the susceptibility to, and the dangers of, septic absorption.

THE RELATION BETWEEN UTERINE AND GASTRIC DISEASES.

BY

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IN pursuing investigations whose aim has been the discovery of the reflex centres and pathways of the nerve plexuses of the female genitals, my attention has been directed to the close anatomical connection between the nerve paths of the uterus and the stomach. Almost daily I have encountered cases in which the patients have long been treated for gastritis and neuroses of the stomach, yet without any improvement, in spite of the most carefully adapted treatment, and frequently with persistence of malnutrition and psychical disturbances. In many such cases genital examination, which was performed on account of symptoms connected with the sexual organs, showed deviation of the uterus in either a sagittal or a horizontal direction, or chronic inflammation of that organ. The cure or improvement of these uterine troubles was followed by striking improvement or entire cure of the gastric symptoms also. For this reason I willingly accepted Hildebrandt's¹ warning that a genital examination should be made of every woman complaining of digestive disturbances, because a connection between the two affections is very common. I found Hildebrandt's suggestion the more reasonable as the patients coming to me with these complaints had been treated long, systematically, and rationally yet unsuccessfully by other physicians.

Since Peter Müller published, about twelve years ago, his great work² on the connection between the diseases of the female body

and the genital functions, the most eminent investigators³ from time to time dealt with the question and explained illness of women from the only correct point of view. This standpoint from which Göthe⁴ has already judged women, is that of the balance of sexual life.

As far as I have been able to discover by a study of the literature of this subject, scarcely any one had dealt earnestly with the theme before the work of Peter Müller, and we find only in the publication of several cases the suggestion that some connection had previously been found between uterine and digestive troubles. Since Peter Müller's the number of papers relating to this question has been very considerable, but very few have sought the connection on an anatomical and physiological basis. H. W. Freund⁵ also expresses this opinion.

Eisenhart corrected a movable retroflexion, and the severe gastric symptoms which had persisted for months soon disappeared; the great gastric pain subsided, vomiting ceased, the appetite became quite normal. The symptoms recurred. Examination showed that the womb had again become retroflexed. After the displacement was corrected the gastric troubles again subsided, and, the normal position of the uterus being maintained, they did not subsequently return.

Graily Hewitt⁶ cured stomach disease of nine years' standing in a woman 27 years of age by elevating the retroflexed uterus and by general tonic treatment. Similar results are described by Kisch,⁷ Panetsky,¹⁰ and others.

Elder¹¹ and Heinrik described similar cases in association with anteversion and with prolapse of the uterus.

The inflammation of the uterus, particularly of the endometrium, also produces severe gastric symptoms. Taffe¹² found in a virgin, 23 years of age, who was greatly weakened by long-standing digestive disturbance with incessant vomiting, a uterus in perfectly normal position and with healthy surroundings. A copious, thick, purulent discharge from the uterus pointed to endometritis. Curettement and irrigation of the uterine cavity with antiseptic solutions cured the gastric troubles almost immediately.

We read also of similar results in endometritis fungosa, interstitialis, or parenchymatosa (C. van Tussenbroëck,¹⁴ Mendel Leon, Theilhaber¹⁵), in sarcoma of the chorion (Gottschall), in atrophy of the uterus (G. Braun), and in neoplasms of the uterine muscle.

A very interesting set of cases is that in which repair of a laceration of the cervix and cure of the accompanying ectropion have resulted in the subsidence of tormenting and long-standing gastric troubles.

Besides the gynecologists just quoted, many physicians agree that affections of the genitals, especially of the uterus, can produce stomach troubles. Rosenthal¹⁹ teaches that dyspepsia, cardialgia, and nervous vomiting can be brought about by genital reflexes which lead to hyperacidity or to insufficiency of the gastric hydrochloric acid, with diminution of the chlorides and increase of the phosphates in the urine, and sometimes the presence of acetone.

Miquel²⁰ and Brinton²¹ attribute the round gastric ulcer to hypoplasia of the uterus, which leads to chlorosis and is accompanied by amenorrhea. Pel,²² in his work on gastric troubles, states that numerous secretory neuroses, reflex cardialgias, and many cases of nervous dyspepsia and vomiting are of uterine origin. Glenard²³ holds that gastroptosis, as *morbus sui generis*, and Fleiner²⁴ that the resulting vertical position of the stomach, are connected with genital, especially with uterine, diseases. Stiller²⁵ supposes that parorexia—*i.e.*, the qualitative alteration of appetite—is connected with pregnancy or uterine changes.

These cases were described from simple observations, without demonstration of, or search for, proof of absolute anatomical and physiological connection. For this reason we are justified in questioning whether the alleged cause and effect may not have been mere coincidences, or whether the cause may have arisen not only from the stomach, but also from many other organs, perhaps from the whole organism. Nor can we exclude at once the possibility that both affections may have resulted from a common cause, although we may think that some primary uterine lesion has caused general nervousness, which manifested itself later on in a gastric neurosis. We also acknowledge that in general anemia both organs are badly nourished and so suffer together. Chlorosis originating from hypoplasia of the whole circulatory system leads to hypoplasia of the stomach and uterus, to malposition of both, to amenorrhea, and to ulcer of the stomach. These are joint results which must be closely inspected in making clinical observations. In examining the causal connection further on, the question arises whether, granting the possibility of the causal relation, the gastric symptoms are merely neuroses or palpable gastric affections. To answer this ques-

tion is sometimes as difficult as to distinguish between these classes of disease, yet we do not lack aids.

The gastric troubles commence regularly with the sensation of pressure after meals; later there is continuous pain, usually epigastric or cardialgia. Soon there is gradually increasing anorexia, sometimes persistent backache. Tasteless or often sour eructations, nausea and vomiting (according to Hewitt, in 11 to 14 per cent of women suffering from uterine disease) continually increasing in frequency and severity, not infrequently result from an attempt to eat, causing gradual emaciation and loss of strength. Afterward all symptoms of malnutrition may appear, for instance edema of the limbs, asthma nervosum, neurasthenia, severe mental depression, etc. According to Eisenhart severe melancholia may follow. In such cases we can determine the presence of secretory disturbances, hyperacidity or motor insufficiency, gastrectasia with feculent eructations and vomiting, and there is no doubt that we have to deal with palpable gastric disease. In less characteristic cases, if the symptoms do not correspond to organic diseases, and a considerable part of them improve or subside rapidly and return without any particular cause, or perhaps in response to psychic causes (grief, fear, anger), and particularly if we have known the individual to be neurasthenic or hysterical, we are right in making a diagnosis of gastroneurosis.

M. Franck²⁶ examined fifteen different women suffering from uterine lesions, who, by the way, complained of gastric troubles of severe type. He investigated very carefully the reaction of the gastric contents, the content of hydrochloric acid, its digestive power, and the gastric motility. In 73 per cent of these cases absolutely normal gastric conditions were found. Panetsky found the same in eleven out of fifteen cases. Theilhaber and Crone has found the gastric secretion normal in the majority of cases and the vomiting centre irritated in only one instance.

Leube obtained similar results. He therefore considers the gastric diseases of uterine origin as reflex neuroses (dyspepsia nervosa, atonia ventriculi, gastralgia periodica).

With this conception we can understand that gastric disturbances not exclusively of uterine origin, but also of nervous type, may be found cured after recovery from genital troubles.

Kretschy,²⁷ on the contrary, observed in a girl with gastric fistula that during menstruation the gastric contents were neutral, the secretion of the stomach changing under the action

of genital reflexes. Fleischer²⁸ again demonstrated, by use of the stomach tube, that during menstruation the digestive power of the stomach is largely diminished, and after the period it again rises.

From these preliminary observations we may conclude that, from a clinical point of view, the gastric troubles occurring synchronously with the uterine diseases may be of uterine origin, *i.e.*, the genital affections may bear a causal relation to them. That the gastric affection is usually secondary is evident from the fact that we can recognize the genital affection as being older, in spite of the fact that we have been led to make the diagnosis of the genital trouble only through the presence of the resulting gastric symptoms.

It is possible, on the other hand, that the uterine trouble may be the secondary. How, in general, are we to explain the causal relation existing between the diseases of these two organs?

We can answer this only after prolonged study of the anatomical and physiological relations, that is, of the common statical mechanism governing the stomach and uterus.

The anatomical studies relating to this point I began in 1884 when I was anatomical assistant to Prof. Mihalkovics. I have studied the abdominal portion of the pneumogastric nerve and sympathetic nervous system, also the paths of the cerebro-spinal nerves supplying the abdominal cavity, and as far as possible I have simplified the description of these nerve paths.

The facts concerning the nerve paths directly connecting the stomach and uterus I can briefly summarize as follows:

These two organs are supplied from three powerful nerve groups: the cerebro-spinal nerves, the pneumogastric, and the sympathetic. Although the cerebro-spinal nerves do not give direct branches either to the uterus or to the stomach, they are in close connection with the sympathetic. For this reason their genital branches are to be studied with great attention.

As we know, the anterior motor and posterior sensory branches of the spinal nerves unite in the spinal ganglia, after which they divide into four main branches, *i.e.*, (1) anterior, (2) posterior, (3) visceral, and (4) recurrent branches. Of these we are chiefly interested in the anterior branch, which, after having given for the upper half of the trunk the cervico-brachial plexus, forms for the abdomen and pelvis the powerful lumbo-sacral plexus. This plexus divides into two smaller plexuses: an anterior, the crural, and a posterior, the pudendo-caudalis. The

former of these gives rise again to two great nerve plexuses, *i.e.*, the lumbar plexus and the sciatic plexus. The lumbar plexus gives off the ilio-inguinal nerve which passes through the inguinal canal, giving rise to the nerves supplying the labia of the great labia.

The other branch of the lumbar plexus is the genito-femoral nerve, which gives off anteriorly the internal spermatic nerve and posteriorly the lumbo-inguinal nerve.

The pudendo-caudal plexus, after having divided into the anterior pudendal plexus and the posterior coccygeal plexus, gives off two nerves, *i.e.*, the median and inferior hemorrhoidal nerve and the pudic nerve. The latter supplies the perineum and clitoris with cutaneous nerves.

From this brief recapitulation we can conclude that the uterus does not receive direct branches from the cerebro-spinal nerves.

The experiment of Goltz,²⁹ in which he cut across the spinal cord of a female dog at the level of the first lumbar vertebra and the animal nevertheless became pregnant, was delivered and lactated normally, can be clearly understood. The experiment confirms the anatomical facts mentioned above. The same animal died from septic peritonitis and the postmortem examination revealed that the cut parts of the cord had become united.

The cerebro-spinal nerves supply the external genitals. They end in the small labia and the clitoris, and, according to Goltz's³⁰ investigations, in the Vater Paccinian corpuscles (in the deeper layer of the corium), in the end bulbs of Krause, and there they end in Meissner's corpuscles.

It can be understood, therefore, how Budge, irritating the lumbar region of the spinal cord, produced erection and, in association with this, ejaculation of semen, but it would be wrong to attribute to the lumbar portion of the spinal cord the genito-spinal centre.

The real nerve centre of the uterus and genitals is the sympathetic ganglion of the sympathetic system, which lies under the aorta, opening in the diaphragm. Its older name is *cerebrum uterini*, *dominiale*, or *centrum nervosum Willisii*, which proves the similarity of the idea of the older anatomists.

*We must disregard as exceedingly problematic certain connections which have been described by one or two authors as direct. One of these connects the posterior wall of the uterus with the pudendo-caudal plexus. The other connects the anterior branches of the sacral nerves with the uterine plexus. The genito-spinal paths, according to our observations, supply the external genitals.

This mighty centre forms toward the genitals (omitting the intermediate plexuses) (1) the inferior hypogastric, (2) the spermatic, and (3) the renal plexuses.

1. The first of these—i.e., the inferior hypogastric, which lies on both sides of the rectum—divides into four smaller plexuses, which are as follows:

(a) The inferior hemorrhoidal plexus, which sends numerous connecting branches to the median and inferior hemorrhoidal nerves of cerebro-spinal origin. We call this connection pudendo-hemorrhoidal anastomosis. (b) The cavernous plexus, which itself gives branches to the clitoris, but is directly connected with the dorsal nerve of the clitoris of cerebro-spinal origin. (We call it cutaneo-nervous anastomosis.) (c) The vesico-vaginal plexus behind the urinary bladder and supplying the upper third of the vagina. (d) The utero-vaginal plexus behind the cervix at the lateral part of the uterus, between the two laminae of the broad ligament. This uterine plexus sends many large branches to the fundus and the posterior wall of the uterus. It is also connected with the second, third, and fourth sacral nerves.

From the plexus are given off also many connecting branches to the hemorrhoidal plexus and to the many ganglia which are to be found at the side of the uterus. The largest of these ganglia is the cervical ganglion, resting on the hinder parametrium and sending many fine branches to the body and neck of the uterus.

2. The spermatic plexus sends more fine branches to the tube, and a great many strong branches to the uterus (fundus, anterior wall) and a large communicating branch to the utero-vaginal plexus. This connection is called, on account of its connection with the solar plexus, the utero-celiac anastomosis. Smaller branches enter the inferior hypogastric plexus, particularly where the latter seems to be connected with the first, second, and third sacral nerves.

3. The most important branches of the renal plexus are those going to the ovary, which end in this organ in large, fine nerve nets, perhaps in smaller ganglia.

We may conclude from this arrangement that spinal stimuli can act upon the uterus only through long intermediate sympathetic paths.

The third large trunk with which the sympathetic nerve has frequent connections is the pneumogastric nerve. This same

nerve supplies the stomach also, for which reason the knowledge of its course possesses double interest in connection with our subject. The pneumogastric starts in the lower part of the floor of the fourth ventricle from the ala cinerea, partly from the nucleus ambiguus. Passing out hence between the lateral and cuneate fascicles of the medulla oblongata with ten to twenty root fascicles, it forms the jugular ganglion, behind the inferior part of which the inner portion of the accessory nerve joins the pneumogastric. I wish to mention only that from the cervical section of the pneumogastric there arise the meningeal branches, stimulation of which causes vomiting, and the auricular branches.

Running through the laryngeal and pharyngeal branches, which originate from the lower parts, through the so-called oesophageal pressor and cardiac nerves, we soon arrive at the stomach, on the anterior wall of which lies the mighty inferior gastric plexus, which is formed by the left pneumogastric nerve. This plexus, which contains vasomotor and secretory elements for the stomach, is connected by more large branches, among them the great splanchnic and small splanchnic, with the solar plexus.

Frankenhäuser was the first who mentioned, and I also have found besides those already mentioned, numerous anastomoses, which, evading the solar plexus, run between the anterior gastric plexus (from the vagus) and the sympathetic nerve system. One of these, a plexus of considerable size, goes directly to the spermatic plexus (utero-gastric anastomosis).

The right vagus contributes mainly to the formation of the posterior gastric plexus, and together with sympathetic branches it forms the superior coronary plexus lying on the lesser curvature of the stomach. I have not succeeded in dissecting out the coronary plexus, but there is no doubt that it consists of pneumogastric and sympathetic branches.

The nervous connection of the stomach and uterus, as shown by this description, stands very clearly before us, as we can see that the nerves of the uterus which go to its posterior wall are supported from the inferior hypogastric plexus of the sympathetic and from the spermatic and utero-vaginal plexuses; and although the existence of direct pneumogastric branches cannot be demonstrated, we can say with certainty that the uterine plexus is connected with the stomach.

I have dealt here only very briefly with the question of innervation of the genitals, and I have given only such information

as is absolutely necessary to the understanding of the reflex paths of the uterus and stomach.

I have yet to mention that the nerves end mostly in the musculature of the uterus, either close by the nuclei of the unstriated muscles or on them, mostly without having any demonstrable end apparatus. The unstriated muscle cell or occasionally its nucleus is vertically reached by the axis thread of the nerves. After their entrance into the uterus the nerve fibres lose the sheath of Schwann and the neurilemma. In the corpus uteri there are exceedingly numerous nerve endings, in the cervix only a few.

According to the observations of Herrff,³⁰ the nerve fibres pass as far as the endometrium only at the fundus, but not even there do they reach the epithelium, whereas Gawronszky could follow the nerves up to the epithelium.

In some places we can find numerous peculiar, larger cells which seem to possess an axis thread of secondary rank (especially in the interstitium), which perhaps are ganglion cells. Probably the stomach, too, possesses independent ganglion cells (Volkmann), because it makes vermicular movements when cut out from its connections. Orenchvoszka, it is said, has demonstrated more ganglion cells on the serous membrane, which communicate with pneumogastric and sympathetic fibres.

The rôle of these supposed ganglion cells in the uterus and stomach is at any rate small, and in the reciprocal actions of both organs they cannot have great weight.

If we bear in mind the direction of the reflex paths already described, and we are aware that cerebral and spinal (vagus and lumbo-sacral) branches are in connection with the sympathetic nervous system, the branches of which control vasomotor and secretory functions, and, according to Röhrig,³¹ act also in a centripetal direction, then the reciprocity of the genitals with other organs, in our case that of the uterus with the stomach, is clearly understood.

But in order to be able to explain in certain given cases the course of reciprocity, it is not sufficient to know the nerve pathways, but, as we have already said, we must study the static factors affecting the two organs mutually. Both stomach and uterus are located in the great abdominal cavity, the upper limit of which is the diaphragm, the lower the perineum. The stomach is supported toward the diaphragm, because one of the chief factors controlling its normal position is the eso-

phagus, by which it hangs, and of which it forms the direct continuation. The balance of the stomach is assured by the gastro-phrenic ligament; toward the liver, by the gastro-hepatic ligament or lesser omentum; below, by the greater omentum and the transverse mesocolon. From the right side it is supported by the duodenum, from the left side by the spleen. Anteriorly is the liver; toward the abdominal cavity, the transverse colon; behind, the spinal column and one portion of the pancreas.

The uterus is held in normal anteflexion by the round ligaments pulling the fundus forward and by the sacro-uterine ligaments drawing the cervix backward, keeping it on the recto-vaginal septum and on the perineum.

An important rôle in preserving the balance of both organs is played by the intra-abdominal pressure. This power reaches the stomach at the region of the greater curvature (it is a static law that the internal pressure of cavities extends radially from the centre toward every spot of the periphery) and pushes it toward the diaphragm, *i.e.*, it aids in the suspension of the stomach. The pressure reaches the uterus on its fundus or on its posterior wall, and therefore, together with the suspending apparatus already described, keeps it in anteflexion.

The balance of both organs is therefore interfered with whenever a change occurs in the anatomical suspending apparatus and in the neighborhood of both organs; also when these organs themselves (uterus or stomach) alter their volume primarily or secondarily; finally, if the intra-abdominal pressure is altered either primarily or secondarily.

I shall illustrate with a few examples. If, for instance, the diaphragm is constantly pushed downward, as in emphysema, tuberculosis, or pleural effusion, the intra-abdominal pressure will be altered; the depression of the diaphragm causes compensatory extension of the abdominal cavity. In other words, that which occurs during each breath—*i.e.*, protrusion of the abdominal wall to a certain degree—will be constant to an extent corresponding to the amount of sinking of the diaphragm.

If this compensatory effect is complete, usually nothing else occurs except that gastroptosis of a slight degree ensues. But if the intra-abdominal pressure has changed considerably, the pressure exerted upon the greater curvature of the stomach increases and it is pushed upward. In this way the fundus of the stomach may be turned forward, an occurrence which takes

place primarily when the stomach is distended (atony, gas-ectasia).

This change of position of the stomach can also be the symptom of compensation in space; if eventually it is insufficient, the bowels are also displaced forward.

The consequent gastro-enteroptosis, by which the centre of intra-abdominal pressure has been displaced downward and forward, not infrequently results in the intra-abdominal pressure being applied to the uterus, not on its posterior wall, but sagittally on its fundus, and so may cause prolapse; or the pressure may be applied to the fundus on the anterior wall, and then retrodeviation occurs.

Thus in these cases a common factor acts upon the abdominal viscera; in the latter phases statical reciprocal actions, *i.e.*, a stomach lesion, secondarily cause a uterine affection.

If the reverse happens, *i.e.*, for example, the gravid or subinvoluted uterus deviates backward slowly or quickly, simply by virtue of its own weight, while in the recumbent posture, this deviation of the uterus can become constant, because the line of the abdominal pressure has been altered, but it has no altering influence upon the statical relations of the abdominal cavity. It may indirectly cause gastric symptoms. The retro-deviated uterus may exert a constant pressure upon the sympathetic plexus, the inferior hypogastric plexus, which pressure acts through the reflex paths described above upon the lumbosacral plexus (sacral pains), thence upon the lumbar plexus, and upon the sciatic (pains radiating to the thigh), most probably by way of those two large nerve groups which connect the inferior hypogastric through the hemorrhoidal and cavernous plexuses with the hemorrhoidal nerves and with the pudendo-anal plexus (hemorrhoidal and cutaneo-cavernous anastomoses).

But this is only one reflex route; the other one is much shorter and more direct. The pressure symptoms of the inferior hypogastric plexus are carried through the great and lesser splanchnic nerves or directly through the genito-gastric anastomosis to the gastric plexuses of the pneumogastric.

The transmission of such reflexes causes motor and secretory troubles in the stomach, or at least sensations which allow the resentment of such conditions, and then we encounter a reflex uterine gastroneurosis. This is what has been erroneously called by Kischard Taffe uterine dyspepsia.

All our efforts to cure the gastric disease will naturally be vain until we have relieved the retroflexion, thus freeing the inferior hypogastric plexus from pressure.

But if we do not discover the retroflexion, and for this reason the resulting gastroneurosis is allowed to be of long duration, what were at first merely gastric sensations—*i.e.*, symptoms not due to organic lesions—really lead to motor and secretory disturbances of the stomach. Gastrectasia the consequence of motor insufficiency, and hyper- or hypoacidity the result of secretory troubles, lead later on to more severe dyspepsia, the symptoms of which I have already described.

A secondary actual gastric affection may thus be the consequence of the variation of the statical relation, *i.e.*, of its position; not as a reciprocal action of these changes in statical relations, but secondarily through nerve reflexes.

I have discussed briefly the questions which I have considered most important, namely, whether and in what way the uterus and stomach may act upon each other, and which of the organs is the one secondarily affected. For example, dislocation of the stomach may cause uterine displacement (by reciprocal action of statical forces), whereas deviation of the uterus causes gastroneurosis or actual gastric disease by means of reflexes (reciprocal action of the nerve paths).

A third medium of reciprocal action of gastric and uterine affections is the circulatory system. There is no doubt that through the latter chemical agents cause the simultaneous falling in of both organs. Several authors, including H. W. Freund, consider the circulatory route as of prime importance and the nerve pathways as ranking below this as a factor in causing the reciprocal action. We believe that these writers estimate the relative importance of these factors erroneously. For example, the author quoted remarks that the experiment described by Goldschmidt as well as that of Schlesinger,³² who has also seen normal uterine movement after cutting across the cervical portion of the spinal cord, would prove the fact that the nerve route does not play such an important rôle in regard to uterine movement; but we are inclined to believe that these and similar experiments and others prove only that the spinal cord is not the centre of the genital nervous system. I believe I have succeeded in making it appear probable, by the reasons I have given, that such a centre does not exist in the brain either, but rather in the abdomen, or more specifically, in the solar plexus.

To confirm his previous belief, H. W. Freund quotes those interesting experiments of W. A. Freund which consisted in stimulation of the areolæ of the breasts with the cathode of a constant current, thereby causing contraction of the uterus. Quite a different result was attained with the reverse of this experiment. If, for instance, he treated a myoma electrically, even for months, with the cathode, he never observed changes in the size or filling of the breast or erection of the areolæ. He explains this by assuming that when the uterus contracts the blood is pressed from it causes compensatory filling in the breast, the reciprocal action being brought about through the circulation, not through the nervous mechanism. We must not say that there is no circulation without nerve action, and that this remote action might be induced through nerve function, and that we have no reason to select the circulatory route rather than the nervous pathway as explaining the mechanism of the reciprocal action. We recognize the existence of chemical mutual agencies acting through the circulatory path.

Summary :

1. Uterine and gastric troubles may be in close reciprocal relation.
2. In making a diagnosis of reciprocal action, merely coincident affections of these organs must be strictly excluded.
3. The first medium of reciprocal action is the nerve path, the centre of which for the genital is to be sought, not in the brain or spinal cord, but in the sympathetic system. The ventral centre of this is the solar ganglion, by means of which the uterus, through the inferior hypogastric plexus, is brought into reflex association with the anterior and posterior gastric plexuses. The reflex paths are called spermatic, pudendo-hemorrhoidal, ilio-caverno-cavernous, utero-celiac, and utero-spinal anastomoses. The more direct reflex paths are direct connections of the vagus with the sympathetic nerve system without entering the solar plexus, especially with the utero-vaginal plexus and with the parauterine ganglia which are connected with this (genito-crural anastomosis).
4. The other mode of origin of reciprocal action must be sought in changes of the common statical relations of both organs.
5. Dislocations of the stomach cause uterine displacement through reciprocal action of the statical mechanical forces (secondary uterine trouble); whereas primary displacements of the uterus produce secondary gastroneurosis or actual gastric dis-

ease, the reciprocal action in these cases being brought about through nerve reflexes.

6. The blood path plays a rôle of only tertiary rank in regard to this reciprocal action.

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PUERPERAL ECLAMPSIA;

WITH REPORT OF NINETEEN CASES.*

BY

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THE subject of puerperal eclampsia is one which has attracted attention from the earliest days of medicine. Notwithstanding this, it is ever new. With a mortality of from 19 to 35 per cent, occurring about once in every hundred labors, often with a sudden and unexpected onset, it well may be considered one of the most terrifying complications of labor. These facts render it one of the most important of obstetrical subjects, and one worthy of careful study. It is, however, a lamentable fact that our knowledge of this disease has not kept pace with advances in other branches of medicine during the past few years, and we know but little more of it than was known thirty years ago. This is due in part, no doubt, to the lack of experimentation on animals. In a fairly careful review of the literature of the past three years I have found reports of but very few experiments on animals with the view of ascertaining more of this disease.¹

In contrast this lack of original research with the many hours and days spent in the investigation of malaria, tuberculosis, and before the Rhode Island Medical Society, December 4, 1902.

or diphtheria, and it will become at once evident that comparatively little has been done to bring to light the cause of eclampsia. It is with this branch of the subject that there has been the most difference of opinion and the most speculation. As already intimated, we are now no more certain of the truth from direct proofs, than were our fathers.

In considering the causes of puerperal eclampsia I shall mention briefly some of the many theories advanced in explanation of the condition, together with the objections to each. I finally speak more at length of the theory at present most commonly accepted.

One of the earliest views of the causation of eclampsia, as of many other diseases in the early days of medicine, was that the convulsions were due to anemia of the brain. This theory was not borne out by autopsy findings nor by the appearance of the patient during the attack. These both tend rather to the advancement of the second theory, that of cerebral congestion. Against this view is the fact that congestion of the brain does not usually produce symptoms similar to those of eclampsia. It is much more probable that the congestion is the result of a convulsion than that the reverse is the case. Even if it is granted that either anemia or congestion of the brain may be the cause of the convulsions, it is still necessary, as Hermann pointed out,² to go still further and ascertain the cause of the brain condition. In this particular the theory is incomplete.

Another theory, and a very attractive one, was that eclampsia owed its origin to the pressure of the uterus on the ureters, causing a hydronephrosis and a disorganization of the renal tissue. Unfortunately autopsies have not shown this condition to be the case in any large proportion of the fatal cases, while, on the other hand, cases have been observed in which the ureters were pressed upon by new growths without any symptoms of eclampsia manifesting themselves. So as yet we have no sufficient basis for this theory.

Schröder suggested that the disease might be due to a vaginal spasm. He was led to this conclusion through the observation that in a number of fatal cases the intima of the larger vessels was separated from the media. The spasm might cause a congestion of the brain and thus the convulsions. G. T. Harrison,³ in favor of this view, states that in favor of it are the suddenness of the onset, the rapidity of recovery, and the occurrence of fresh seizures as a result of any irritation, *e.g.*, vaginal examination. The

of the larger vessels mentioned does not, however, obtain in majority of the cases of eclampsia, and this theory is not at present day generally accepted.

It would have been strange indeed if within recent years someone had not suggested a bacterial cause. Such, in fact, has been the case; but while several bacteria have been isolated from cases, none has been found constant or which can be accepted as a cause.

The relation of albuminuria to eclampsia could not fail to have been observed early, and the theory was propounded that the disease was similar to uremia. Further study has, however, shown that there are important differences. Changes are, as a rule, not found in the liver in cases of eclampsia, while there are noticeable changes in connection with uremia. Uremia is the result of a condition of the kidneys which is rarely cured, while most cases of eclampsia who recover show after a lapse of time a perfectly normal urine. Patients who recover from the attacks of uremia live, as a result of those attacks, for a longer time than those who recover from eclampsia. It is true that eclampsia is somewhat allied to uremia, but it is surely something more.

Within a short time it has been suggested that the condition is due to a lack of the thyroid hypertrophy which is normal during pregnancy, and a consequent insufficient supply of its product, thyroxine. This product is supposed to neutralize the toxins in the blood, and therefore, if it is diminished in amount, the toxins are left to act upon the system. This theory has not yet been fully worked out, but may apply in certain cases.⁴

This brings us to the next theory, which is at the present time the most generally accepted and the one which appears to explain the whole condition. It may be stated as follows: Puerperal eclampsia is due to the action of the toxins elaborated in the organism by metabolism, and either produced in excess, and insufficiently destroyed, through faulty metabolic processes, or retained through deficient action of the kidneys, skin, and excretories. It is well known that the process of metabolism produces certain substances which are distinctly harmful to the organism. These are disposed of in two ways, as has been shown by Dorland⁵: first, by the activity of the spleen, liver, and other organs; second, by elimination. If, then, either of these functions is so disordered as to fail in its duty, an auto-intoxication results and the system is overwhelmed with these toxic products. During pregnancy the liver, which is the

chief organ engaged in this process of metabolism, has laid it a greater load than in the normal condition, and under stress the process may easily become disorganized, so that the organ is unable to neutralize the toxins in the blood as normally should do. A toxemia results.

Autopsies on patients dying from eclampsia have in many cases shown a striking similarity in the morbid anatomy, both gross and microscopical, to the lesions found in known cases of toxemia. Thus there have been found fatty areas in the liver with other areas of hemorrhage; enlarged and softened kidneys also showing hemorrhages; and cloudy swelling in the kidneys and hemorrhages in other organs. There is scarcely a case—except possibly acute yellow atrophy of the liver, the pathogenesis of which is as yet unknown—which shows a similar list of pathological findings.

The marked changes in the liver in these cases would seem to show that it is with this organ that the greatest fault lies. The liver shows more pronounced changes than any of the other organs, and this, in connection with our knowledge of its metabolic activity, naturally leads to the conclusion that this activity must of necessity be interfered with to a considerable degree.

Admitting the similarity of eclampsia to toxemia, we have only to ask how the condition is brought about. To this question we can give no satisfactory answer. It is probable that the toxins are elaborated in a greater amount than normal; this overproduction in turn brings about an irritation and deficiency of excretion in the various excretories and in the destruction of the toxins by the liver and spleen, and the toxins are thus retained within the body and cause a profound poisoning.

We have next to inquire as to the exact nature of the toxins. What are they? Various substances have been considered as the causative factors. Carbamic acid, ammonia, urea, and creatinines in turn have had their adherents. Dorland⁶ has suggested acetone as the agent responsible, but gives as his reason for suggesting it only the fact that the breath of certain eclamptics has the odor of acetone. I have been interested in this suggestion, and it seems to me that this substance is probably one of the chief toxic agents. It is a by-product of metabolism and is excreted, under ordinary conditions, in appreciable amount by the kidneys and the lungs. As already mentioned, the breath of many eclamptics has a decided odor of acetone, and it is probable that it is found in excess in the urine, although

been able to learn, this is not yet proved. When toxic given to animals, convulsions, coma, and depression symptoms very similar to those of eclampsia.⁷ These conditions all suggest the possibility that acetone may be the active causes of eclampsia. It is, however, probable that other substances besides acetone act also as toxic agents, and the scientific investigation of these toxic agents lies a large field of research. Our knowledge of the pathology of eclampsia may be summed up somewhat as follows: probably a toxemia, brought about by a changed metabolism of liver and perhaps of other organs, and by a deficiency in calcium, and acetone is one of the most active of the toxic

symptoms and diagnosis of the disease are so well known and understood that it is unnecessary here to dwell upon them. It may be remarked, in passing, that several cases have been reported in which there was no albumin in the urine. The author has been unable to find.

Usually, the treatment of eclampsia has occupied much of the attention of observers, even though the etiology has been so obscure. Many methods of treatment have been recommended, and have been extolled by those who employed it, but as yet we have no really effective treatment. In fact, Herman goes so far as to say that no form of treatment has been proved to do good.⁸

Chloroform has been strongly recommended for many years. There is no question that it controls the attacks, but, even so, it is only treating a symptom and in no way reaching the cause of the disease. Chloroform, furthermore, must be given very cautiously during the attack in order to be effective, because during a convulsion itself the respiration ceases and no chloroform can be inhaled. It is therefore necessary to administer during the interval between the seizures, and this seems feasible—under such conditions the physician cannot determine how long to continue administration, because he cannot tell whether or not there will be more fits.

Stramonium was early recommended, and of late has been urged by Stroganoff. He gives it in large doses, beginning with half a grain, and following with doses of one-fourth grain every two or three hours as needed. This method has rarely been employed in the Boston Lying-in Hospital with some degree of success.⁹ The chief objection to it is that the drug stimulates the secretions, which we should seek to stimulate in

every way, if we believe in the toxemic theory. This objection, however, based on theory alone, and is not borne out by evidence, as shown in cases reported.

Venesection has been done in former years to some extent, but has of late fallen more or less into disuse.¹⁰ In cases in which delivery, either natural or manual, takes place, there is no need for venesection, as the bleeding attendant upon separation of the placenta is sufficient; and in other cases, if the patient is hypertensive, the desired reduction in arterial tension may be brought about by *veratrum viride*. This drug has been used extensively in this country, particularly in the Southern States. Many reports have been made as to its efficiency, but for some reason its use has not been generally adopted. Probably one reason for this is that in many cases of puerperal eclampsia there is not a pulse of high tension, but rather a feeble, running pulse, which evidently would not bear any such drug as *veratrum viride*. The drug's action is, as aptly described by Wood, "to bleed the patient into his own body," by dilating the great arterial system and also by depressing the heart. It is, therefore, unfit for use in a case in which the pulse is already weak. When used it may be given hypodermatically in doses of fifteen minims of the tincture, repeated every half-hour until the pulse drops or thereabouts.

Pilocarpine in doses of one-tenth grain is of value to produce sweating, but it is liable to produce edema of the lungs—a condition to which the patient is already only too subject. Used cautiously and watchfully, however, it has been of much value in some cases.

Chloral and the bromides are the sheet anchors, so far as controlling the convulsions is concerned. They should preferably be given by rectum, even if the patient be able to swallow. They should be given in sufficiently large doses and repeated as often as may be necessary. Thus, thirty grains of chloral hydrate or a drachm of bromide of soda may be given, dissolved in a small quantity of warm water, and, if necessary, this may be repeated in a few hours, and afterward every two hours if the patient is restless. Care should be taken that the solution is deposited as high in the rectum as possible, in order that it may be retained. Even after delivery these drugs should be continued until we are satisfied that there is no further danger of convulsions.

With the advent and fairly general adoption of the theory of toxemia, insistence was laid on stimulation of the emun-

der to rid the system of the toxins retained. To this end emetics and cathartics should be given in every case until free action of both the kidneys and bowels is obtained. For the latter castor oil or the saline cathartics are preferable, as producing large watery movements. The former drug may be given in doses of one or two drops, and has the advantage that it can be placed in the mouth of a patient in a comatose condition and is absorbed enough to produce catharsis. Of the diuretics, infusion of digitalis with a vegetable carbonate gives the best results.

Hot baths, or the hot pack, or the hot-air bath are all of value, and one or the other of these should be used in every case to induce free sweating. The pulse should be watched carefully while the patient is in the bath, as it occasionally becomes weak. When the temperature is rising a cold tub bath may do much, as in one case to be reported. But little has been written on this procedure in eclampsia, so far as I am aware, but, judging from the wonderful results seen in this case, it may be a valuable adjunct to our treatment.

Within a few years the use of a normal saline solution, with the idea of washing out and diluting the poisonous principles, has been highly recommended, and is deservedly becoming more and more popular. It may be given by rectum, or more effectively under the skin. In the latter method a pint may be introduced under each breast, or, I think preferably, in each loin. It is of advantage to introduce it into two areas at once, in order to get it into the system as quickly as possible. The temperature of the solution as it flows from the needle should be nearly or exactly 100°, and the temperature in the jar or bag should be 112° to 114°. It has been found at the Lying-in Hospital that the fluid cools about 14° in flowing through eight feet of rubber tubing with the temperature of the room about 78°. Allowance must be made for this, as I believe that the heat is an important factor, not only in the rapid absorption of the fluid, but also in its stimulating effect.

Thermal therapy may in the future give us some help in the treatment of this condition, but up to the present time nothing has been done along this line.

I have purposely left until the last the method of treatment which I consider the most important and the most valuable. I am convinced, from both theoretical and practical considerations, that in cases of eclampsia, actual or threatened, the uterus should

be at once emptied. This view is, I am well aware, strongly debated by various authors, notably Herman.¹¹ It will be fit therefore, for me to give my reasons for this view. Back of the theories of eclampsia which have been mentioned lies the generally admitted, that the presence of the fetus *in utero* is the remote cause of the condition. If this be so, the first object of treatment should be to remove this cause; for so long as the fetus remains, our treatment can be directed only toward the symptoms, and with feeble effect. In the majority of cases I believe the convulsions cease or become less severe as soon as the patient is delivered. It is true that there are cases in which the fits occur after delivery, but it is a significant fact, as pointing to the fetus as the cause of the condition, that the mortality from parturient convulsions is less than from those occurring ante partum or inter partum. Thus Nature herself indicates that the patient is safest when the uterus is empty. It is objected that the traumatism attending a forcible delivery is too severe and may lead to serious and fatal results. We know that the first half of dilatation of a cervix is the most difficult and requires the greatest force. But in doing the ordinary dilatation of the cervix, even to stenosis we often reach the diameter of two inches without any ill effects being seen. On the other hand, the last half of dilatation in a manual delivery need cause no severe lacerations if done carefully and slowly. With one exception in the cases which I have to report, in which manual dilatation was done, the patients were examined on the day before discharge, and in none were there found deeper lacerations than in many primiparæ delivered naturally. As to the shock attendant upon immediate delivery, it has not seemed to me that the patients were seriously affected. In most of the cases the condition at the conclusion of the operation was as good as at the beginning, and in some cases the pulse improved markedly. Immediate delivery, therefore, does no harm, and does at once remove the cause of the symptom complex. It seems only reasonable, therefore, to conclude that it should be the method of treatment in every case. I believe this assertion is correct, and also that it should be followed whether or not the patient is at term.

The exact method of procedure must vary with the case. If the os is undilated and hard, dilatation may be begun with a steel dilator, and a Barnes bag introduced. The Barnes bag gives an even and continuous dilating pressure, but in the cases here reported its use has been unsatisfactory from the fact that it does not well retain itself in the cervix. If the os is so

ally dilated, dilatation may be completed and the child delivered by version or forceps, as may seem best in the individual case.

Undue force and too great haste must be avoided, as to cause injuries to the maternal tissues.

I have to report nineteen cases. With one exception, all were delivered and treated in the Providence Lying-in Hospital, and I am indebted to the visiting staff of the hospital for permission to report them. I myself had the privilege of seeing all of them day to day and of directing the treatment in many of them. I have included only those cases in which convulsions actually occurred, excluding several in which there were urgent symptoms in which manual delivery was performed. I shall give only a brief outline of each case, and close the paper with a summary of them:

CASE I.—This patient was delivered by Dr. J. H. Bartley and attended by myself from that time.

M., aged 36, married; third pregnancy; no premonitory symptoms; three or four convulsions during labor; urine, trace of albumin; delivery with forceps; no convulsions after delivery; died on fourteenth day from exhaustion; child living.

CASE II.—M. Y., aged 38, married; fourth pregnancy, at term; illness and two convulsions the afternoon before entrance; no convulsions after; urine solid on boiling, large number of dark granular and waxy casts; in stupor; manual dilatation and version; child living; recovery.

CASE III.—A. O'H., aged 24, married; first pregnancy, at term; first symptoms four weeks previously; several convulsions before entrance, none after; urine, large trace of albumin and a few hyaline and waxy casts; no rise of temperature; much edema, especially of the vulva, which was scarified; pulse tense; died expectantly for two days, and was then spontaneously delivered of a living child; recovery.

CASE IV.—E. D., aged 30, married; seventh pregnancy; delivered outside hospital, and had postpartum hemorrhage and convulsions; labor normal; unconscious; temperature 99°; urine, much albumin and a few casts; developed pleurisy with effusion, and was transferred to the Rhode Island Hospital; died obstetrically.

CASE V.—M. A., aged 24, married; third pregnancy, at term; five convulsions before entrance and ten after; some edema of feet; pulse tense; urine, specific gravity 1013, albumin one-half by bulk, a few granular casts; temperature normal; manual dilatation and delivery with forceps; no convulsions after

delivery; recovery of both. Urine of patient on discharge: specific gravity 1018, trace of albumin, no casts.

CASE VI.—J. St. A., aged 40, married; ninth pregnancy five months; six convulsions before entrance, slight twitch only, after; conscious; no fever; slight edema; urine, specific gravity 1014, considerable albumin, sediment wholly hyaline granular casts; treated expectantly and discharged in one week. Two weeks after discharge, re-entered and, after a few hours labor, delivered of a macerated six-months fetus; developed right pyelitis and was transferred to the Rhode Island Hospital for ultimate recovery.

CASE VII.—E. D., aged 26, married; sixth pregnancy, in labor at six months; unknown number of convulsions before entrance and two after; comatose; some edema; cervix soft; urine, specific gravity 1015, albumin one-fifth by bulk, hyaline and waxy casts; no fever; manual dilatation, and delivery by version; child living; no convulsions after delivery; unconscious for four days; temperature not above 100°; recovery. Urine on discharge: specific gravity 1015, a trace of albumin, no casts.

CASE VIII.—L. S., aged 18, married; first pregnancy, at term with some symptoms during last month; one convulsion when labor was on perineum, and three after delivery; labor sixteen hours in length; urine, albumin one-half by bulk, a very few hyaline casts; no rise of temperature; recovery of both. Urine of mother on discharge: specific gravity 1020, a trace of albumin, no casts.

CASE IX.—K. C., aged 28, married; first pregnancy, in labor at term; four convulsions before entrance; unconscious; pulse tense; temperature 97°; urine, specific gravity 1023, solid granular boiling, many granular casts; manual dilatation and version; child stillborn; patient secreted but four ounces of urine twelve hours after delivery, and died in convulsion, making total of five. Temperature did not reach 98°.

CASE X.—B. F., aged 32, married; third pregnancy, at term five months; three convulsions before entrance, none after; temperature normal; edema of feet; comatose; urine, specific gravity 1018, two-thirds albumin by bulk, many casts; manual dilatation and version; child living; mother died twelve hours after delivery; no urine secreted after entrance.

CASE XI.—S. T., aged 27, married; fifth pregnancy, in labor at term; one convulsion at moment of delivery of head; slight edema; urine, trace of albumin, a few hyaline casts, urea

cent; recovery of both. Mother's urine negative on discharge.

CASE XII.—C. C., aged 38, married; second pregnancy, at term; eight or ten convulsions before delivery; temperature 101.8° on entrance, rising to 105° immediately after delivery, and falling to normal in twenty-four hours; urine, one-half albumin by bulk; manual dilatation and delivery with high forceps; recovery of both. Mother's urine on discharge, specific gravity 1030, trace of albumin, no casts.

CASE XIII.—C. G., aged 22, married; first pregnancy, at term; convulsion during labor; forceps; temperature rose to 106° ; urine loaded with albumin, many casts; sixteen convulsions following delivery, making a total of seventeen; developed pleurisy and pneumonia; recovery of both.

CASE XIV.—M. C., aged 17, single; first pregnancy, delivered at term after a short labor; twenty-eight convulsions after delivery; urine loaded with albumin, many casts; temperature 101.8° on entrance, and rapidly rose to 106° ; died three days after delivery; child living.

CASE XV.—E. R., aged 27, single; first pregnancy, at seven months; premonitory symptoms and one convulsion two weeks before entrance; after, some twitching and dimness of vision; urine, large amount of albumin, many hyaline casts, twenty-nine leucocytes in twenty-four hours; induced labor, easy and short; polyuria—one hundred and forty-two ounces in twenty-four hours; recovery of both. Mother's urine on discharge: large amount of albumin, a few hyaline casts, urea 2 per cent.

CASE XVI.—S. W., aged 18, single; first pregnancy, at seven months; one convulsion before entrance, none after; unconscious; urine, specific gravity 1030, large trace of albumin; manual dilatation and version; temperature rose to 100.8° on fourth day; recovery of both. On discharge mother's urine showed trace of albumin.

CASE XVII.—E. H., aged 21, married; second pregnancy, at eight months; three convulsions before entrance; pulse 120 and weak; comatose; urine, one-half albumin by bulk, very many coarse granular casts, urea 1.8 per cent; manual dilatation and version; constant convulsions for twelve hours after delivery, and temperature rose to 105° ; cold tub bath at 60° fourteen hours after delivery; temperature normal in twenty-four hours; paralysis of left arm; recovery of both.

CASE XVIII.—E. M., aged 27, married; first pregnancy, at

eight months; premonitory symptoms for three weeks; two convulsions before delivery; unconscious; much edema; temperature 101°, pulse 180; urine by catheter, one and one-half drachms only, solid on boiling; manual dilatation and version; child dead; five convulsions after delivery; died twenty hours after delivery. Four ounces urine were secreted in that time, analysis which was as follows: specific gravity 1020, albumin three-fourths by bulk, urea .65 per cent, many hyaline and li granular casts.

CASE XIX.—J. K., aged 21, single; first pregnancy, at ten convulsions began during labor; four in all; manual dilatation and version; fetus macerated; venesection—one and one-half pints; urine, specific gravity 1010, albumin one-fourth by bulk, many fine and coarse granular casts, some blood; recovery.

These 19 cases occurred in 694 labors which I have had opportunity of observing, an average of 2.7 cases to every hundred labors. This is an excessive proportion, due to the fact that so many of the cases were seen in the hospital, to which severe cases are especially apt to be sent. Fifteen, or 78.9 per cent, were married; 5, or 21 per cent, were single; 9, or 47.3 per cent, were primiparæ and 10, or 52.7 per cent, were multiparæ. These figures are, for some unknown reason, not at all in accord with those usually given, viz., 70 per cent primiparæ and 30 per cent multiparæ. The average age was 27 years. Of the 19 mothers, 5 died, a mortality of 26.3 per cent. Of the 17 children living *in utero*, 2 died, a mortality of 11.7 per cent; two were macerated when delivered.

With respect to the time of onset of the convulsions, the figures are as follows: antepartum, 13 cases, or 68.4 per cent; intrapartum, 4 cases, or 21 per cent; postpartum, 2 cases, or 10.5 per cent. The mortality in each class was as follows: antepartum, 4 cases, or 80 per cent; interpartum, none; postpartum, 1 case, or 20 per cent.

There was no case of twins.

In 11 cases, or 57.8 per cent, the convulsions ceased with delivery; in 3 cases they seemed to increase. In the 5 fatal cases the average number of convulsions was 9.4, and in the 14 non-fatal cases the number was 7.9.

The urine contained albumin in every case, in many a large amount, but in only one case was blood found. Every case showed some edema. In most of the cases the urine at discharge contained a slight amount of albumin, but no casts. I reg

exceedingly that more careful examination of the urine was not made with regard to urea and acetone, and also that we were unable to obtain autopsies in the fatal cases.

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CARCINOMA OF THE LARGE INTESTINES, WITH SPECIAL REFERENCE TO VON MIKULICZ'S METHOD OF RESECTION.¹

BY

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MALIGNANT growths are more frequently found in the larger than in the smaller bowel, also more frequently in males than females. They seem to appear generally between the ages of 40 and 60 years, but have been observed at any age, even in early childhood. The cylindro-epithelial forms of cancer are the type most generally found, whereas the medullary carcinoma is quite rare, and more so even the gelatinous form. The former has a great tendency to ulcerate and produce hemorrhage or perforation into the abdominal cavity. It extends generally in a circular direction and in this way forms a stenosis, with hypertrophy and dilatation of the intestinal walls above the seat of stenosis, with an ultimate result of total obstruction. Its mode of diffusion may be through the lymphatic vessels, peritoneum,

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through the general circulation, or by continuity. Metastases in rather late in cancer of the bowels, and, according to Hauser, the colloid or gelatinous form has a tendency to produce metastatic foci in the serosa, lymphatic system, or bone, not in the liver. Medullary cancer has more a predilection for the regional lymphatic glands, and the scirrhus more for the liver. The symptoms seem to develop quite slowly, and obstinate constipation appears to be the most prominent one; by some observers this is even considered the cause of cancer. Trauma has also been looked upon as the cause in a few cases. We notice disturbance of the intestinal function sooner when the cancer is seated in the lower portion of the colon, since the stools are harder there than in the cecum. The annular cancer also causes symptoms sooner than cancer extending longitudinally along the intestinal wall. In some cases constipation alternates with diarrhea, and a tumor in the sigmoid flexure is accompanied with tenesmus; the stools present the shape of ribbons or resemble the stools of sheep. Bloody discharges are quite an important symptom, whereas the presence of mucus points more to catarrh of the lower bowels. Colicky pains also have some significance, as they are caused by the contraction of the hypertrophic intestinal segments; at the same time gas may be pressed through the stenosed portion, producing in that way a characteristic squirting noise which König has called *Stenosengeräusch*. The contour of the contracted coil can be readily traced through the abdominal wall and gives the impression of a solid tumor, which, however, suddenly disappears with a gurgling sound. This stiffening of the intestinal coils is a characteristic sign of stenosis, and if it persists after injections, hot applications, or the administration of opiates and laxatives, it becomes a positive diagnostic sign of chronic stenosis. If it is constantly found in the same region it will also indicate the seat of obstruction. This obstruction, as a rule, comes on gradually, but in some cases may develop quite suddenly and may even be combined with invagination. The tumors are found most frequently at the sigmoid flexure, next at the ileo-cecal region, and then at the transverse colon. Tumors in the ileo-cecal region generally rest upon the pelvic bone and can therefore, be more readily detected than in some other portions of the colon. If located at the ascending colon and hepatic flexure they can be palpated under the borders of the ribs. In the transverse colon some small annular tumors were only detected after the abdomen was opened. In one case the stiffening

of the cecum and ascending colon led to its diagnosis. The splenic flexure has been the seat of small annular tumors, but they escaped detection as they were hidden behind the ribs and could not be readily felt even after incision, since the flexure is not very movable. Distension of the transverse colon and collapse of the descending colon and sigmoid flexure, however, pointed to the seat of obstruction. Tumors of the sigmoid flexure at times also present some difficulty of diagnosis, especially at the lower portion of the flexure, as they are generally small and ring-shaped; and, besides this, the seat of stenosis is overlapped by the inflated smaller intestines. In my case the tumor could be readily palpated, as it was attached to the abdominal walls. Experience seems to demonstrate that the smaller annular cancers readily escape palpation, are also more apt to cause obstruction, and that the diagnosis is more difficult the more this stage of obstruction is developed. These tumors have quite a tendency to ulcerate and to suppurate, and pus foci may be found in the tumor or in the neighboring organs—i.e., the omentum, intestinal or parietal walls—so that such abscesses may disguise the true condition. Several cases are on record where they perforated into the abdominal cavity and produced general peritonitis. We also find decubital ulcers (*Dehnungsgeschwüre*, as Kocher calls them) above the seat of obstruction, owing to over-distension of the intestinal wall.

Diagnosis of such cancerous tumors is, as a rule, not so easy, except where they are of considerable size. The symptoms of stenosis are colicky pains, rigidity or stiffening of the coil above its seat, and the noises and gurgling sounds of stenosis. If they appear in persons of middle age or older than that, and persist after the use of laxatives or opiates and proper diet, we can safely assume that we have to deal with a stenosis or mechanical obstruction. Tenesmus and bloody or putrid discharges also point to stenosis of the lower part of the colon and call for rectal examination. It would be of great advantage if we could examine such cases before symptoms of obstruction and distension of the bowels have set in; but as these growths at first are latent in their appearance and do not cause much disturbance, patients are generally slow in calling upon a physician. Where, however, symptoms of stenosis become manifest, thorough and repeated examinations should be instituted, even under anesthesia; and if these symptoms persist or become worse, surgical interference should not be delayed very long. Of course with the

symptoms of stenosis the nature of the growth has not been clear, and, besides cancer, we have to think of tubercular benign growth. The history of the case will give us some clue in this respect, besides the knowledge that malignant growths are of more frequent occurrence. No great danger will, however, accrue for the patient if we are not able to diagnose the nature of the tumor, since all such conditions call for operative interference. Where the tumor can be palpated some of the diagnostic factors have to be considered. In the ileo-cecal region we may have to deal with chronic inflammatory exudation; this condition, however, shows generally a tendency to absorption, whereas the malignant tumors remain stationary or increase in size. In tubercular tumors the age of the patient, and the history of the case as to tubercular degeneration of some other organ are valuable factors in diagnosis, although Körte mentions a case which showed tubercular deposits in the lungs and a tumor in the ileo-cecal region which after operation proved to be a carcinoma. Actinomycosis may also form a swelling in the ileo-cecal region that may assume the shape of an inflammatory infiltration as hard as a board or of a circumscribed tumor, so that only a microscopic examination will reveal its true nature. Tumors of the cecum, colon ascendens, and the hepatic flexure are not infrequently mistaken for a floating kidney. The latter, however, has a smoother surface than the nodular growth of cancer, and it can readily be replaced in its normal position. Inflammatory and malignant tumors of the gall bladder can be mistaken for tumors of the colon, especially when the latter are adherent to the liver; but symptoms of gall stones or jaundice generally precede or accompany the former condition. Tumors of the transverse colon may closely resemble tumors of the lower curvature of the stomach or pylorus. Insufflation of the stomach and bowels will throw some light on this question, and the same may be said of tumors near the splenic flexure. Körte mentions a case where an able diagnostician found some pus on puncturing the tumor; this led him to regard it as a purulent cyst of the spleen, but after inflating the colon he made a diagnosis of tumor of the latter viscus. Tumors of the colon have been mistaken for growths of the kidney, but examination of the urine and insufflation of the bowels will assist us in making a correct diagnosis. Tumors of the sigmoid flexure can sometimes be felt through the rectum or vagina, but they have also been mistaken for tumors of the adnexa. Nothnagel estimates the length in life in cases

unaided by operation from one-half to two years; there are a few cases said to have lived five years.

The question of the advisability of an operation is not always easy to solve. The mobility of the tumor has some bearing upon this question. Ileo-cecal tumors are not very movable, and even strongly fixed growths in that locality do not necessarily contraindicate an operation. Körte, in such a case, removed portions of the anterior wall of the abdomen and also of the iliac fascia and the patient lived nine years. In the transverse colon or sigmoid flexure things are somewhat different, as tumors in that locality are more movable owing to the anatomical arrangement of those parts. Should they become fixed the possibility of a radical operation is very limited, especially at the lower portion of the sigmoid flexure, where the tumor becomes adherent above the promontory. Adhesions to the abdominal walls or the omentum are of little importance; more serious are adhesions to the neighboring coils or to the bladder. Infiltrations of the mesenteric glands increase the danger very much, especially at the root of the mesentery, where ligature of the larger blood vessels would endanger the nutrition of some portions of the bowels. Metastasis of the liver or peritoneum contraindicates a radical operation.

The true condition is sometimes only revealed after parts have been exposed by incision. As a rule we are able to tell which portion of the bowels is affected when the tumor is located in those regions which have anatomically a fixed position—*i.e.*, the cecum, the ascending colon, hepatic flexure, and descending colon. In a few cases the cancer was combined with invagination in the ileo-cecum, and the tumor could be felt in the median line near the umbilicus. When located in the transverse colon this viscus may form an arch down to the pelvis, so that a tumor felt in the latter region may mislead us in regard to its connection. If there is no palpable tumor, a probable diagnosis can only be made by the symptoms indicating distension of some coil and stenosis, and by the recurrence of such symptoms at regular intervals and at some fixed portion of the bowels. As stated before, tenesmus and bloody discharges point to a tumor in the sigmoid flexure. The fact, also, that only about one litre of fluid can be injected into the rectum may be considered a characteristic sign of that condition, except where the bowels are considerably distended.

In regard to treatment, our main object should be a radical

removal of the malignant growth, and palliative measures only be reserved for inoperable cases. Unfortunately patients come into our hands when a radical operation very little chance and where an artificial anus alone may prolong life, but will add very little to its pleasures. From a theoretical and technical standpoint, where radical operation is still admissible, circular resection or lateral implantation or anastomosis would suggest itself, and most of the operators have followed these methods. Körte seems to have had very satisfactory results in cases of ileo-cecal carcinoma by lateral implantation, and ascribes this result to the fact that none of his cases have suffered from obstruction—a condition which, no doubt, influences the operative result materially. Kocher, Kümmell, Kelly, and others, after extensive resection of the sigmoid flexure and ascending colon, have invaginated the colon into the rectum. Kümmell reports even a case where he extirpated the colon and rectum to such an extent that he stitched the transverse colon to the anal ring. It is certainly encouraging to know what brilliant success some eminent men have achieved in this line of work. A general survey of the literature and statistics on this subject, however, shows even in the hands of our best surgeons a mortality high enough to cause us to look for some method that will reduce the danger still more. I hailed, therefore, with interest a method described by Von Mikulicz¹ which he has followed lately in resection of the larger intestines for malignant or benign growths, and which, though in a roundabout way, has given better results than any other method so far described. As it has given great satisfaction in one of my cases, it may be worth while to detail the different steps of the operation by giving the history of the case.

C. P., aged 54 years, farmer, came to see me toward the end of April, 1901. He had noticed a swelling in the left inguinal region for about two months. Constipation, colicky pains, and some blood in his stools were the most prominent symptoms at that time. His general health did not seem to be affected by it. The tumor appeared small, a little nodular, and not adherent. Operation was proposed, but not accepted until about the middle of June. At that time the mass presented the size of a hen's egg, was less nodular, and seemed to be firmly attached to the parietal walls. Injection of water did not move the tumor. It added nothing further in regard to diagnosis. A slight caec-

¹ Handbuch der praktischen Chirurgie, vol. iii.

appearance, however, made the latter more positive in regard to carcinoma. Operation was made on June 27, 1901, and carried out precisely as described by Prof. Von Mikulicz. An incision in the left inguinal region, as usually made in colostomy, revealed the tumor adherent to the parietal peritoneum, which was thickened, and the muscles were edematous. The tumor was of the size of an orange and could readily be separated from its adhesions. The peritoneum was stitched to the integument; the mesentery ligated to the extent of one and one-half inches beyond the limit of the growth on each side; the tumor was then brought outside the peritoneal cavity, so that the two intestinal coils were brought into parallel apposition and, so to say, formed the pedicle. The hiatus in the mesentery was brought together by a few catgut sutures as far as the coils protruded from the abdominal cavity. These coils were brought more intimately together by a continuous row of sutures on each side, so that there would be little danger of perforation from the instrument which Von Mikulicz used to clamp the spur and which he called "kentrottribe" (*Spornguetsche*). A few sutures fixed the bowels to the edge of the wound, and especial care was taken that the mesocolon would reach up to the level of the wound to prevent gangrene of the intestine in the abdominal cavity. The parietal incision was then closed in a manner similar to colostomy. This condition still makes it possible for gas, and even stools, to pass through the eventrated coil. My patient began to complain of a rumbling of the bowels and pain about thirty-six hours after operation, so that about 2 o'clock in the morning I cut the tumor off with a pair of shears. The temperature varied the first two days between 102° and 103°, but after removal of the growth it went down to 101°. The efferent coil was left a little longer than the afferent one, as the latter has a greater tendency to protrude and the latter to retract. The result of this procedure is an artificial anus, which is left in that condition for about ten days or two weeks; after that time the spur can be clamped off with Mikulicz's clamp (or *Spornguetsche*, as he calls it) and which I here show you. This instrument could not be found here in the market, and the manufacturers did not venture to make one unless they had a sample to copy it from. It was, therefore, ordered from Germany, which caused quite a delay, so that I could apply it not sooner than October 2, 1901. I removed it on

October 11 and allowed the patient to go home for a few days to see what effort Nature would make in closing the intestine. On his return, November 25, I found the spur very much enlarged, but stools still passed out at the side with the exception of a few evacuations through the anus. The clamp was again applied for a few days and the final operation made on December 14. An incision was made around the artificial anus one-half inch from the mucous membrane, and a tampon was introduced into the lumen of the upper coil; the peritoneum was opened at the lower edge of the wound. The adhesions were firm and extensive, and it required some time to separate them. The projecting mucous membrane was removed with the edge of the tissue of the abdominal wall. I then first united the mucous membrane of the two coils, and this was followed by two rows of Lembert sutures. A small sterilized gauze strip was left over the line of suture and the abdominal wound closed with silver sutures. With the removal of the tampon on the next day a little brownish fluid and gas with fecal odor escaped. Temperature varied between 99° and $100\frac{1}{2}^{\circ}$, pulse 62 to 70 per minute. A little flatus passed through the anus on the next day, and for about ten days a little escape of gas through the wound could be noticed. On the thirteenth day I injected an Epsom salt solution, colored with methylene blue, into the intestine, but no fluid escaped through the wound, which was healed by a small stitch hole. Bowels had not moved before, but did so twice the same night. Patient left the hospital on December 28, and a recent examination shows him in better health than he has been for years.

Von Mikulicz stated, in a letter written to me in January last, that he was well satisfied with this method and that it had enabled him to undertake without too great risk operations in cases which had hitherto been considered inoperable. He could report at that time about 30 operations made by himself and others, and that the mortality did not reach 10 per cent. It should be remembered that with the other methods the mortality still ranges from 36 to 50 per cent even in the best hands.

From a paper read by Von Mikulicz before the German Surgical Society I notice that he has modified the operation somewhat. Instead of waiting twelve to forty-eight hours before he cuts off the tumor, he now removes it at once and introduces a large glass tube into the upper coil, to which is attached

rubber tube to drain off the intestinal contents. The wound, after being closed in a manner similar to an artificial anus, is covered with zinc paste and sterilized gauze; a piece of oiled silk, provided with a slit to pull the tumor through it, is placed over this. As to the ultimate result, he states that out of 12 cases operated upon more than four years ago there has been no recurrence so far in 5 cases, and they represent a time from four to nine and one-quarter years. This report, combined with the one furnished two years ago by Körte, would give 9 permanent cures out of 24 cases, or 37.5 per cent, which compares favorably with any other statistics on operations for cancer.

A REVIEW OF SOME OF THE OLDER WRITINGS ON MATERNAL NURSING.¹

BY

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WHILE recently preparing a paper on the older methods of substitute feeding, so many things of interest relating to maternal nursing were encountered that it seemed desirable to embody them in a paper on this subject. The present-day literature demands so much of our attention that few of us take the opportunity to study the older writings. This fact emboldens the writer to present to you some of the more interesting and amusing features noted in the course of this study.

Dr. Jacobi, in the preface to a monograph on "Infant Diet," written in 1873, says: "There was a time when no historical essay, either systematic or monographical, could be written without reference to Adam and Eve. With similar pertinacious appeal to first principles have treatises on the diet, physiology, or pathology of infants or children considered themselves bound to prove, by multitudinous facts, that breast milk is the indispensable food for new-born or for young infants. Now, there are some truths which ought by this time to be taken as axioms and whose fresh demonstration seems to me superfluous."

¹Read before the Philadelphia Pediatric Society, November 11, 1902.

The writer agrees fully with what Dr. Jacobi has written; it is not the purpose of this paper to prove that breast milk is the indispensable food for the new-born. With Dr. Jacobi we take it as granted that mother's milk is the most appropriate food for an infant in all its stages of gradual development. It would seem, however, from what follows, that there was a time when it was necessary to educate not alone the mother but also the physician to a fuller appreciation of this truth. For this reason, apparently, that so many of the older writers expended time and eloquence in endeavoring to prove a position which we look upon to-day as self-evident.

According to Van Swieten (1742), it must have been a common occurrence for physicians in the seventeenth and eighteenth century to recommend artificial foods in preference to human breast milk. He quotes Van Helmont and his contemporaries as condemning the use of milk, "be it from the mother's or from animals," their objection being "that milk grows rancid in the stomach." As a substitute food they used "a paste with beer," which Van Swieten considered "a very superior preference and one which was not satisfactorily explained."

Opposition to maternal nursing has been more prevalent in some periods than at others, and, fortunately perhaps, has been more common in the higher than in the lower walks of life. In the latter part of the eighteenth and in the beginning of the nineteenth century, custom—or style, as some author explains it—practically proscribed maternal nursing among the aristocracy of France and England. Walter Harris, in his "Treatise of the Acute Diseases of Infants," translated from the French by Thomas Astley in 1742, says "it is grievously to be lamented that so many mothers, not only of high rank, but even of a common sort, can with so much inhumanity and more than brutish cruelty desert their tender offspring and expose them to so many dangers of mercenary nurses." Every author of the time comments in like unfavorable fashion upon the existence of this evil. The reasons given for it were many, and, curiously enough, much the same as those we have to contend with to-day. The author just quoted formulates them thus: "They are: the free enjoyment of diversions, the greater ease of adorning persons, the opportunity of receiving impertinent visits, and returning these insipid favors, the more frequent atten-

upon the theatre, or the spending of the greater part of the night upon their beloved cards."

Many of the arguments used in favor of maternal nursing seemed to be addressed especially to mothers.

Thus, Underwood (1789) states "that suckling conduces to the easy recovery of the mother"; but, aside from this, he considered that she owed a duty to her child, and to the child of the wet-nurse she would probably employ if she did not nurse her own, which ought to induce her to perform this mother's duty. He says: "The infant race of man passes through a long period utterly helpless, alike divested of ideas to guide and of strength to manage for themselves; but to the parent is imparted both, whose province it is to judge for them and actually put into their hands or mouths whatsoever they may stand in need of. When the parent, therefore, forsakes the paths of simplicity and lays down arbitrary rules, the result of false science instead of patient experience, or mistakes the clamor of fashion for the voice of Nature, confusion and disease must be the unavoidable consequence. Awakened by these, man is loudly called upon to return to the simplicity of Nature and the result of dispassionate observation." Nicholas Rosen von Rosenstein (Sparrman's translation, 1776) uses, as does Underwood, the beneficial results of nursing upon the mother as an argument in favor of maternal nursing. "By doing this," he says, "they gain a great deal. They will have earlier deliveries, avoid several diseases, as the milk fever, purpura puerperium, and inflammation of the womb; also bubones lacteæ in the groins, which often make them lame. They avoid likewise the fluor albus or whites, etc., which often arise from such causes."

The learned John Anstruc, writing at an earlier period (1746), considered it "cruel and unnatural in a mother, either out of self-love or indolence, to defraud the new-born babe of that milk which Nature has provided for it." He quotes the following words of the prophet as "a standing instance of how much God Himself was displeased with this barbarity amongst the Jews: 'The sea monsters draw out the breast; they give suck to their young ones; the daughter of my people is become cruel like the ostrich in the wilderness' (Sam. iv. 3); and again, 'She is hardened against her young ones as though they were not hers' (Job xxxix. 16)."

Deweese (Philadelphia, 1825) quotes the following lines from Transillo (Roscoe's translation) in advocacy of maternal nurs-

ing, showing in what light he held the mother who attempted to avoid this duty to her offspring:

"Does horror shake us when the pregnant dame,
To spare her beauties or to hide her shame,
Destroys with impious rage and arts accursed
Her growing offspring ere to life it burst,
And can we bear on every slight pretence
The kindred guilt that marks this dread offence?

She who to babe her breast denies,
The sentient mind, the living man destroys."

Walter Dendy (New York, 1833), in his very interesting publication, "The Book of the Nursery," in arguing for maternal nursing writes thus: "The act of nursing is both a duty and a mutual pleasure.

"The starting beverage meets the thirsty lip:
'Tis joy to yield it as 'tis joy to sip."

Indeed, every mother is guilty of lessening her own maternal dignity who does not avail herself of that fountain of natural milk which Nature has bountifully bestowed upon her as the source of life and preservation of life. How exquisite is the story of the Venetian mother who, seeing, with extreme agony, her child creeping toward the edge of a precipice, spite of all her crying tones and epithets, suddenly unfolded her bosom to the view and by that powerful magnet instantly drew her child from destruction to her trembling arms." Thus might one quote indefinitely from the beautiful and sometimes amusing lines which have been written in support of maternal nursing.

The contraindications to breast feeding have always been much the same. Some authors have laid more stress upon certain conditions than have others, but in the main they agree pretty closely with the views we hold to-day. Augustus (1801) advised that "only healthy mothers ought to nurse their children, while those who are sickly, passionate, frequently oppressed with grief, subject to fits of anger, epilepsy, scurvy, consumption, and other diseases, should rather employ nurses than engraft their misery on their innocent offspring." John Syer (1812) advised recourse to a wet-nurse under the following conditions: In the event of (1) habitual relaxation of the intestines; (2) pregnancy; (3) secretion of sebaceous matter by the glands of the nipple, imparting a bitter taste to the milk; (4) secretion of a superabundant quantity of the salts of the blood, producing a strong saline taste; and

very scanty supply. Other writers did not consider this latter objection sufficient to justify entire withdrawal of the breast. Moss (1794), Cambon (1799), and later Dewees (1825) advised partial substitute feeding under these circumstances. Most of the earlier writers agreed with Syer in considering pregnancy as a contraindication, and some included menstruation; but Van Swieten "did not find that the nurse's health was much altered or her milk changed in any respect" during menstruation, and he did not consider that the occurrence of pregnancy should "produce much alarm." He refers to having seen "a woman who, feeling the first pains of her accouchement, gave her breast to her child of a year old, saying it must say good-by to the milk which was destined for the one about to be born." Furthermore, he says, "it had happened thus to this woman for the sixth time." Rosen von Rosenstein (1776) found that children sucking during menstruation "have been indisposed," but, rather than wean the child, he advised that "some other person should suck the nurse's milk on those days and the child in the meantime be fed with clear whey, such as is obtained in preparing egg cheese from coagulated milk and eggs." This sage advice was apparently not appreciated by his confrères, as one does not find further reference to it until well on in the nineteenth century. The views of Walter Harris (1742) upon this subject are very interesting; he says that "if the nurse is given to the drinking of wine or spirituous liquors her milk is presently influenced and the unhappy infant sucks in fires that are almost unquenchable; but if, out of lasciviousness, she too soon admits the embraces of her husband whilst she gives suck, the menses are often brought down and thereby the milk is corrupted and coagulated, and the substance of the milk being denied another way, it is gradually diminished, and the emaciated infant, being fed for some time with an improper nourishment, often perishes. If, in the last place, the nurse is hysterical, is of a tender and delicate constitution, let her be ever so chaste or sober, yet her milk degenerates and often grows thick from the fault of her own constitution. In what dangers, therefore, are all those that suck! From this and other causes it is that the passing-bells are so often heard to toll for some innocent infant that suffers for the faults of his nurse and perishes from no other cause than that he has had the misfortune to suck a nurse who is intemperate, nasty, ill-natured, or endowed with some ill quality or other."

Rules to Guide the Nurse.—That the mother should guard her habits and health during lactation has always been gently advised.

Van Swieten (1742) recommended the following regimen for the mother or the wet-nurse: "She should refrain from eating leeks and onions and all articles of a strong or disagreeable odor. She should eat very moderately of confections, stewed fruits, and such dainties. She should not change suddenly the mode of life to which she has been accustomed and in which she lived when in good health. Simple nourishment, such as soups and roasted meats, is desirable. Young and tender vegetables, fruits, and fresh eggs may be taken, but fats and acids and aromatic foods are forbidden. In the beginning of lactation she should take more liquid nourishment and less meat, increasing the solids and reducing the liquids as the infant grows older." Alcoholics are forbidden, but "one ought," he says, "to accord a little leniency to the habits and customs of the country." He insists upon sufficient exercise, "especially of the arms and body, such as making beds and carrying water, and some exercise in the open air. "Tranquillity of spirit and happiness" should always obtain.

Rosen von Rosenstein (1776), like Harris, advised that "the nurse should avoid all commerce of love," as "the milk by this will be spoiled and grow salt." She should take sufficient and necessary sleep, otherwise "her breasts will dry up, the milk will turn yellow and bad." "She ought to know how to govern her passions; if exasperated she should not suckle the child immediately, as it will grow indisposed, get convulsions or suffer from other dangerous disease, and often lose its life." He quotes Dr. Albinus as having observed "a child a year old sucking from its mother when she was exasperated, the consequence of which was, the child immediately got a hemorrhage through the ears, nose, mouth, intestines, rectum, etc., and died." The same author saw another child have three convulsions from the same cause. To avoid such calamity he advised that "after a fit of anger or severe fright she should not be permitted to suckle her child until some woman or other sucked out the milk from her breasts." The general method of emptying the breasts by means of a sucking glass was not sufficient to protect the child. If the nurse was "uneasy or hipt," and the cause, therefore, could not be found, he provided a new nurse, otherwise "the child would begin to pine away." Robertson (1807) recom-

ended "divesting nursing of many of the more irksome circumstances that usually attended it." He believed that "woman's milk varied in quality more than any other milk—a fact," he thought, "one might expect *a priori* from the endless variety and from the mode of living and circumstances of women." For these reasons, therefore, he advised that all mothers live by rule during lactation.

James Hamilton (1809), realizing the temptations placed in the way of ladies of rank, suggested that they "retire to the country while nursing their infants, where they would be remote from the impure air of crowded cities and removed from the allurements of fashionable amusements, and could give attention to regularity in diet, hours of rest, proper exercise, etc." Nursing the infant during the first period of the mother's gestation was opposed by Marshall Hall (1831) "lest it give rise to indigestion in the mother and thereby produce changes in her milk."

The position ordinarily recommended for the mother and child while nursing was to have the mother sitting, with the child placed in an easy position, its head and back being supported by her arm. Some authorities advised the reclining position for the mother, turned partially to the side from which the infant was nursing, the arm of the same side acting as a support for the back and head of the infant, which was placed on its side "great care being taken that the child's nose be free to breathe and that it be comfortable." Underwood (1789) directed that the babe "be placed upright during nursing, as it will in this position swallow its food more readily."

Care of the Nipples.—It was a common custom in olden times to anoint the nipples during the first nursings for the double purpose of inducing the child to suck and accelerating the secretion of the milk. De Fourcroy (1774) advised moistening them with tepid water or saliva. James Kennedy first had "the breasts washed with tepid water and soap, and then with a lotion composed of milk and water of equal parts, slightly sweetened, and warmer by a few degrees than the body temperature."

For attracting nipples which lay too deep in the chest Struve (1801) advised the use of sucking glasses; "but if glasses be not at hand," he says, "a Dutch clay tobacco pipe of a large size may be substituted, the bowl of which being placed on the nipples and the air drawn out, they will thus be restored to their proper situation; after the nipples are raised by repeated

suction they may be covered by a ring of gum elastic." booklet published in New York in 1811, and written by a woman who called herself "An American Matron," the following directions are given for the treatment of erosion of nipples: "The infant should be fed for a few days by drawn from the breast by means of a sucking glass, in order to give the nipples a chance to heal." "Upon this plan the nipple may be preserved, for it is a fact that while the babe is nourished by it, it will continue to flow, let it be obtained from the breast how it may; whereas if it is drawn out and thrown away, the mother will have less and less until it eventually dries entirely." Evidently realizing that this latter statement might meet with unfavorable criticism, she subjoins the following: "This statement may perhaps excite a smile of incredulity in the learned reader's mind, because the fact cannot be accounted for on any known principles. Facts, however, are not made by theory, but theory created by facts."

The question of the proper time to first put an infant to the breast led to the expression of many opinions. Van Swinderen (1742) refers to a custom antedating his time, by which the mother did not commence to nurse her child until between four and six weeks after her accouchement, that is, until she was quit of her lochia." "Mauriceau," he says, "chose for the first period a wet-nurse who had been confined for at least twelve or fifteen days." He does not state the purpose of this custom, but, judging from the fact that a wet-nurse not "quit of her lochia" was selected by Mauriceau, one would infer that it was for supposed good to the mother rather than to the infant. In other references to this custom have been noted. The large majority of writers have advocated putting the child to the breast within a few hours of birth. Some of these administered substitute foods, it mattered not how short the interval between birth and the first feeding, while others were governed in this matter by evidences of hunger on the part of the infant. Others few withheld the breast for a period extending beyond twelve to four hours. The advantages of early nursing were thought to depend upon a laxative action in the colostrum, which cleared the intestinal tract of the meconium, a stimulating action to increase the flow of milk, the formation of the nipple, the prevention of sore nipples and milk fever, and the education of the infant. Moss (1794) believed the view that "the first milk" had a purgative action was false; he had "repeatedly known children

one, two, etc., months old procured to draw out the nipples and soften the breasts for the first day or two after the coming of the suck, without producing any sensible effect of the kind."

Evanson and Munsell (1838) coincided in this view and thought that "it excited the intestines simply by mechanical distension, and so in effect produced expulsion of the meconium, as other food is found to do in cases in which the secretion of milk is not established for two or three days after labor."

Some others of those who held this view prescribed laxatives of some kind. De Fourcroy (1779), for instance, gave a mixture composed of an ounce of syrup of chicory and rhubarb with an equal quantity of water; in another part of his work he advised "an ounce of manna after birth to eliminate the meconium," which he thought "might cause tetanus if retained."

The *artificial foods used to supplant the retarded breast milk* consisted of such things as pap and panada (made of bread and water boiled, and sweetened with brown sugar); cream much diluted with water (Robertson, London, 1807); cow's milk and water, equal parts, with a little sugar of milk (American Matron, 1811); sweetened water (James Kennedy, 1825); two parts of cow's milk and one of water (Eberle, 1833); thin gruel with a little milk (Evanson and Munsell, 1838), etc. All of these substitutes were stopped immediately upon the appearance of the milk.

Intervals of Feeding.—It is a very easy matter to write down rules and regulations, but to enforce them is another thing. Some of the earliest writers pointed out the dangers of too frequent and irregular nursing. De Fourcroy in 1774 wrote feelingly against the then common custom of nursing the infant whenever it cried, and most of the writers since his time have done the same thing, and yet the custom is probably as prevalent to-day as it has ever been. He recommended two-hour intervals by day during the first six weeks (if awake) and only two feedings by night; during the remainder of lactation he increased the day intervals to three hours and permitted but one night nursing.

Rosen von Rosenstein (1776) believed that "a nurse would do well to use a child to suck at fixed hours by day and no more than necessary. She may easily perceive when it wants to be suckled: (1) from the time it has gone without suck; (2) if it fixes its eyes on the nurse and they seem, as it were, to follow her wherever she goes; (3) if joy sparkles from the child's eyes

when she opens her breasts; and (4) by the child sucking finger when she places it in its mouth." The new-born infants of Rosen von Rosenstein's time were evidently more precocious than those we observe to-day.

Equally interesting with the directions just referred to are those of George Armstrong (1783). He thought that "infants were very young there could be no fixed time for feeding." The rule he adopted was that "during the first weeks, if the mother has a good deal of milk, the infants require very little feeding and that chiefly in the night in which it should be wakeful. When near the weaning period it should be fed chiefly in the daytime and put into the habit of sleeping at night. At first it should be fed frequently and a little at a time. Cramming can never be of service, but hurtful. If at any time it refuses to feed, by no means urge it, but amuse it and give it exercise until the appetite returns. It is a good custom for the nurse, about 10 or 11 o'clock at night, to take up the child, even if it is asleep, open it before the fire, turn it dry and feed it." He says: "I have seen oftener than once a child taken up in a sound sleep eat a hearty meal of victuals and afterward break wind two or three times, then put into bed again without opening its eyes."

Chambon (1799) considered it "absurd to adopt fixed periods for feeding." He thought it necessary to give infants the breast whenever they cried, assuming that the cries were always caused by hunger; but hunger, he says, is far from being the only cause for crying.

Augustus Struve (1801), whose advice is always good, recommended giving "even very young infants their food at short periods of the day." He says "the stomach should be allowed to recover its tone and to collect the juices necessary for digestion before it is supplied with a new portion of food." He quotes Prof. Hufeland as considering it "improper and precarious to keep infants continually at the breast. It would be less hurtful, nay, even judicious, to let them cry for a few minutes rather than fill them incessantly with milk."

Roberton (1807) agreed with Struve in the adoption of stated periods for nursing—every three or four hours during the day. He found that "by a little perseverance and care the infant, if suckled just before going to rest, would acquire the habit of passing the night without the breast."

Marshall Hall (1831) recommended two-hour intervals dur-

the first and second months, and considered the chief object in maternal nursing to be to adapt the quantity of milk to the infant's needs." "On those days in which the bowels were confined" he urged the mother to "nurse with double care not to overload the stomach."

Dewees (1825) and Dendy (1833) thought it "unnecessary to observe regular periods for suckling." The latter advised the occasional withdrawing of the infant from the breast during the act of nursing, "to avoid too rapid a distension of the stomach—a common cause of acidity."

Andrew Combe (1840), who preferred three-hour intervals during the early months of lactation, thought it surprising how very soon the infant accommodated itself to regular periods. "The quiet repose enjoyed during the interval he thought beneficial alike to parent and child, and an ample reward for the very small trouble required to establish the practice in the first weeks of life."

Weaning.—The length of time that maternal nursing should be continued seemed to give rise to much diversity of opinion. The addition of artificial foods was advised by some writers at a very early period. Hamilton (1809), for instance, advised "a little panada once daily as early as the tenth day." The object in this early administration of artificial food was to accustom the infant to the necessary eventual withdrawal of the mother's milk.

The learned John Anstruc (1746) was opposed to this custom. He says: "Infants should not be glutted with pap in the first months, which turns to a crude, indigestible chyle. It is safest to give it to them moderately twice a day, nor should children be weaned until they are eighteen months or two years old. The longer they suck the better, as good breast milk not only prevents many ills, softens and cools the gums when inflamed, forwards dentition and prevents its untoward effects, but often lays the foundation for a robust and healthy constitution."

Van Swieten (1742), who believed that a true milk was furnished to the infant in the uterus, was decidedly opposed to the early giving of artificial foods; thus he says: "If a change in nourishment to adult men who enjoy the best of health is dangerous, it is clear that there is greater ground for fear when a strange nourishment is given to a child. Nature having given milk not only to women but also to females of quadrupeds who are accustomed to carry their young, it is evident that Nature's

intention is that the child newly born should be nourished by milk of its mother, and this alone, until the development of strength and the eruption of its teeth."

Rosen von Rosenstein (1766) held that "in general we should indulge a child by suckling until it has gotten all its six milk teeth." "However," he says, "one cannot fix upon a certain time for weaning, as a weak child should be suckled longer than a robust one. Whatever the time chosen, weaning should always be gradual."

Underwood (1789), one of the older writers, whose advice is generally good, recommended gradual weaning at about the twelfth month and advised against additional foods before that age. He made one exception to this latter statement, namely, that where the infant showed evidence of dissatisfaction with the mother's milk, it should be given a little panada after the age of one month.

Moss (1794) advised, "in order to accustom the child to the methods of artificial feeding, that at the age of three or four months it should be given occasionally a little ass' milk diluted with cow's milk, one in three, out of a boat or spoon."

John Roberton (1807) recommended maternal nursing exclusively to the end of the seventh or eighth month; then he gradually weaned the child, completing the process at about the tenth month. He substituted two feedings with "biscuits or small crackers boiled in water to a thin gruel, carefully beaten through a sieve and sweetened with fine sugar." He objected to cow's milk at an early age "on account of its curdling." He preferred "cream diluted with from four to six ounces of water," and ass' milk he thought even better than this.

James Hamilton (1809) thought that the "time of weaning should be fixed by the health of the infant, the season of the year, the constitution of the mother, and the period of lactation, etc."

John Syer (1812) believed that "as the infant advances in growth the milk contained rather a larger proportion of undigested matter and expressed oil, until at length it became an improper food." For this reason he advised a change of food about the ninth month, as, "after this, milk can no longer be secreted with impunity to the mother and without risk to the infant."

Deweese (1825) advised gradual weaning at the eleventh or twelfth month, and endeavored "to excite an aversion to

breast, either by touching the nipples with some bitter or disgusting substance (as aloes) or covering them with a forbidding one, as black wool, ink, court plaster, etc."

Walter Dendy (1833) advised gradual weaning from the eighth to the tenth month, and, like Dewees, where it was difficult to educate the child to artificial methods, he advised producing aversion to the nipples by smearing them slightly with mustard or other nauseous or pungent substances. The majority of the later writers advised gradual weaning toward the end of the first year, the first substitute food being composed of whole milk, diluted milk, or bread-and-milk mixtures.

It was a common belief in the eighteenth century that infants imbibed in their milk the vices and virtues of those who gave them suck. This idea was utilized as an argument both for and against maternal and wet nursing. Thus, John Anstruc (above referred to) says that "with the milk the infant sucks it imbibes the manners and disposition as well as the peculiarities of the nurse's humors. This appears in animals which suckle a strange dam; thus, a lamb sucking a goat changes not only its nature but even its wool into the goat kind. So it is also among rational creatures; hence we have justly the old proverb touching an ill-natured person, that 'some brute or other has been his nurse.' If people of honor and probity would more observe this fact, I am apt to believe, admitting a proper education, that there would not be so many graceless, disobedient, and degenerate children of our age."

Van Swieten (1742) refers to this subject at great length, but boldly, and logically announces his disbelief in it. He quotes it as one of the arguments of those who with Van Helmont opposed maternal nursing and the use of all milk foods. He says "they attempt to show that sacred and profane history required that queens and princesses nourish their own children," and, further, "that the moral conditions of these first ages invited them to fulfil this rôle." "Mothers then communicated to their children with their milk the inculcation of all kinds of virtues, while in our corrupt time they suck vice with their milk. These writers make vows in consequence that it should be forbidden mothers by public authority to nourish their own children." He comments thus upon these views: "I do not think myself that our century ought to be judged with so much rigor. If we have to-day many vices, we have also some virtues." "The beginning of the world was mixed up with a fra-

tricide. In fifteen centuries after the creation the amor crime was so great that God by just chastisement made a world to perish by a deluge with the exception of Noah and his family. One cannot doubt that these first centuries were more than ours, since it is said in Genesis (chapter vi.): 'All flesh that the earth has corrupted his way.' Aside from this I do not believe that milk has any influence upon manners. What difference, for instance, between the two brothers Cain and Abel? They were born of the same parents and nursed by the same breasts. The young calf which becomes in time the indomitable bull has nursed the same milk as his peaceable sisters.

"The story is told of some parents who for the sake of their child wanted to discharge a nurse who was perfectly healthy only because they thought she was stupid, upon which an old doctor, a celebrated author, said smilingly that their child had, however, more sense than the cow upon which they relied to raise their son. Besides, if these writers consider the influence of the mother as capable of giving to the child the vices of the body and of the spirit of the mother, should they not fear to teach their nurslings the stupidity of the ass as well as the petulance and lubricity of the goat if they would give them the milk of these animals?"

1822 SPRUCE STREET.

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CELIOTOMY DURING PREGNANCY.¹

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(With one illustration.)

WHEN formerly a surgeon made a mistake in his diagnosis on opening the abdomen and found pregnancy, he quickly closed it and let the case alone, even if some growth or pathological condition existed. He had a great dread of interfering.

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With the improvements in abdominal surgery more courage shown. Some cases required prompt operation, pregnant or not, and it was soon found that operations could be performed just as safely during pregnancy as they could if it did not exist. Tumors that would interfere with normal delivery were removed, and other acute conditions, such as appendicitis or injury to the bowels, were promptly operated upon, even if it were known that pregnancy existed.

In many cases operations were performed when it was not known that pregnancy existed. In fact, in some cases it is utterly impossible to diagnosticate this physiological condition when it is complicated by growths or inflammatory products. Of course every experienced surgeon makes mistakes occasionally, but the inexperienced one makes them quite often. Especially in those growths accompanied by hemorrhage it is in some cases utterly impossible to make a diagnosis. Some of the symptoms of pregnancy may be present and still those same symptoms may be produced by tumors. The disturbances of the stomach, enlargement of the breasts, and the increased size of the abdomen are present both in pregnancy and in various neoplasms. Still to-day, with a more thorough knowledge, we can generally diagnosticate pregnancy if accompanied with a morbid condition, and we operate deliberately with a full knowledge of what we have to deal with and thus can be on our guard. The greatest pride is not to operate on a case because it is pregnant. It is to do some severe complicated operation and still *not interfere with pregnancy*. That seems to me to be the greatest triumph of the ambitious abdominal surgeon.

Having had cases requiring various kinds of surgery, it seems to be interesting to report them, and I have, of course, not included in this list cases of Cesarean section or extrauterine pregnancy.

Appendicitis and Pregnancy.—The fatal results from neglected cases of appendicitis are so well recognized now that prompt surgical interference is the only correct view, pregnant or not. I have had a number of this kind of cases, as follows:

CASE I.—Mrs. H. B., aged 28, three months pregnant; acute appendicitis; ruptured and suppuration. She was brought to one of the interior towns on a stretcher. I operated December 10, 1892, opening the abscess, removing the appendix, and placing in a drainage tube. The septic process, however, continued and she died the third day.

CASE II.—Mrs. P., aged 30; had symptoms of obstructive

the bowels with inflammation of the appendix; operated on her at Harper Hospital April 10, 1894, she being pregnant at the time five months. On account of the extensive adhesions the operation was difficult. She recovered from the shock of the operation, but was immediately taken with labor pains and aborted twenty-four hours after the operation; gradually sinking, she died twelve hours later of shock.

CASE III.—Mrs. F. T., aged 23; pregnant four months; three attacks of appendicitis of mild type; a patient of Dr. Garvin's; operated November 3, 1898; during the time had an acute attack of a mild type; recovery and, as I learn, delivery at term.

CASE IV.—Mrs. G. F., aged 31; pregnant six months; acute attack and suppuration; operated December 24, 1901; drainage; aborted third day; suppuration and fecal fistula continued for six weeks; complete recovery.

CASE V.—Mrs. F. T., aged 23; pregnant five months; had two attacks. Being a trained nurse, she knew all about the seriousness of appendicular troubles and was only too willing for an operation. I performed the operation August 3, 1901, forty-eight hours after the onset of the third attack. The appendix had not ruptured and I could make an ideal operation, closing the abdomen without drainage. Complete recovery and delivery at term.

Fibroids; Myomectomies.—Fibroids often interfere with delivery, especially if in the cervix or near there. Large fibroids in the body of the uterus which project into the peritoneal cavity, as a rule, offer no obstruction to labor, but frequently prevent contraction and thus are the cause of postpartum hemorrhage, and in that way become dangerous and therefore cause much anxiety to the obstetrician. Of fibroids operated upon during pregnancy I have three cases, as follows:

CASE I.—Mrs. F. H., married one year; diagnosis, pregnancy of three months' standing and a hard tumor, either of a long-pedicated fibroid, fibroid of the ovary, or a dermoid. As it seemed to grow rapidly, I advised an operation, which I performed July 31, 1894. On opening the abdomen it proved to be a long-pedicated fibroid, and by making a wedge-shaped incision into the pedicle near the uterus I could easily bring the edges together, slightly inverting the peritoneum and closing the abdominal incision, using kangaroo tendon throughout. She made a splendid recovery. Being a highly-educated lady, she remembered my request to let me know the final outcome of the

case, and a year later sent me a picture of her baby, three months old.

CASE II.—Mrs. Dr. P., aged 27; pregnant five months. She was very anxious to have a child, having been married six years, but did not seem all right. The doctor on examination found that there was something wrong and brought her to me. On examination I found that she was pregnant about five months and had a number of fibroids—one, between the uterus and bladder, about the size of a pigeon's egg. This seemed to have grown very rapidly, and if it continued to do so would certainly interfere with delivery, so I advised a celiotomy and enucleation of the fibroid. The operation was performed May 18, 1897. Besides I found two smaller ones at the anterior part of the uterus, which I also removed. The whole uterus seemed to be studded with fibroids from the size of a millet seed to a pea. I could not and did not try to remove them. I closed the abdomen, using kangaroo tendon throughout. A slight abscess developed in the incision, but it closed in the course of three weeks. She made an uninterrupted recovery. I entirely lost track of her, but understood that she had premature delivery at seven months.

CASE III.—Miss C. H., aged 25; had a hard tumor, but no menstruation for over four months. I was very suspicious of pregnancy, although I was not positive, as we all know such cases are very deceiving. Hence I made an operation. I found a fibroid five inches by two, which I could enucleate without much trouble. She was pregnant about four months. She made an uninterrupted recovery. Her mother was with her, but never found out the real trouble. I, however, told the girl her condition, that she ought to attend to it immediately and get married. As she came from Virginia and went back there, I never heard the end of the case. I operated July 28, 1898.

CASE IV.—Mrs. G. K., aged 34; pregnant five months; three fibroids, one in the broad ligament about two and one-half inches in diameter, the other being about one and one-half inches; the latter being posteriorly, growing into the cul-de-sac, which would have caused obstruction to labor. I operated on her January 5, 1899, enucleating the fibroid and closing the wound using catgut; closed the abdomen also in the usual manner with catgut. She had a good deal of pain afterward, which was controlled by morphine, but on the third day the pain became worse; she finally was going to abort. During the night

orrhage set in and the fetus was delivered without the knowledge of the nurse or anybody else, the patient not complaining at all; the hemorrhage being evidently profuse, because when notice was taken of her she was in collapse. Although the most energetic means were immediately taken to revive her, she gradually became weaker and died the fourth day. Her temperature being normal, no doubt the cause of death was simply hemorrhage.

Hernia.—Of hernia I had only one case, that of Mrs. S., aged 28; three children; pregnant six months. She had inguinal hernia for years and had suffered a great deal from nausea during this pregnancy. All at once this became uncontrollable, and after vomiting for twenty-four hours she sent for her physician and he attributed her vomiting to the pregnancy. But after another twenty-four hours, as it did not cease, he became suspicious and finally decided that the hernia must have something to do with it. I was called in and verified the diagnosis, but the patient absolutely insisted that the hernia had existed for a long time; she had no pain then and it had nothing to do with her condition. However, I gave her until the next morning and then insisted on an operation. She agreed to go to the hospital, where I operated on her November 11, 1898. There was an old omental hernia with adhesions, which makes these cases so deceptive (we all have had them), and on top of this there was a small knuckle of intestine strangulated. She made an uninterrupted recovery and was delivered at term.

Abdominal Hysterectomy.—CASE I.—Mrs. W., aged 41, mother of three children; irregular and profuse menstruation for one year; during last three months more or less bleeding constantly; uterus large, somewhat soft; diagnosis, soft fibroid. Operation June 10, 1893; total abdominal hysterectomy; great tendency to bleeding. Abdomen closed with kangaroo tendon. Sepsis and death third day. What was my astonishment, when I examined the specimen after the operation, to find a pregnant uterus with the soft fibroid. With every case of myoma I now always expect pregnancy, but have found no case since.

Ovariectomy.—At the meeting of this Association in 1889 I reported a case of fibroid of the ovary.

CASE I.—Mrs. L., aged 26; four years married; no children; pregnant three months; hard tumor in right ovary removed; uninterrupted recovery. Silk was used throughout. Delivery at term.

CASE II.—May 10, 1890, I operated on Mrs. H. L., aged 30,

at the Woman's Hospital. I made a diagnosis of pregnancy three and one-half months; large ovarian tumor, weighing twenty pounds, was removed in the usual way. She made complete recovery and was delivered at term. Silk was used for ligature.

CASE III.—Mrs. C. W., aged 34, mother of three children, five months pregnant and a hard tumor in the cul-de-sac.



it would interfere with confinement, I urged an operation. On April 26, 1892, I removed a dermoid tumor, about four inches in diameter, which was adherent in the cul-de-sac. She made an uninterrupted recovery and was delivered at full term.

Vaginal Hysterectomy.—During the meeting of the American Medical Association in Detroit, 1892, I performed a number of operations, one being:

CASE I.—Mrs. H. B., aged 29. She had more or less menstruation trouble; for ten weeks had flowed steadily; the uterus

large, the cervix ulcerated, and there was no question about it being cancer. I performed vaginal hysterectomy with the clamps June 10, 1892. There was great tendency to hemorrhage, but I finally removed it, and on opening the specimen I was astonished to find a small fetus about ten weeks. She made an uninterrupted recovery, but in nine months the cancer recurred and three months later she died (see illustration).

CASE II.—Mrs. G. H. B., aged 28; one child five years old. Her mother had died of cancer of the uterus at the age of 29 and she had a great dread of the disease. She became pregnant, and, having considerable pain and a great deal of discharge, she was sure that cancer was developing. Dr. Wilson, whose patient she was, was suspicious from the general appearance of the case. I was called in, and I stated that it was very suspicious of cancer; but as I could not curette her on account of pregnancy, I could not verify my opinion by microscopic examination, so inclined to let the case alone. However, she continued to get worse, and I decided to perform a vaginal hysterectomy, which I did on December 15, 1900. The operation was easy, but the woman started to vomit. Septic peritonitis set in and she died on the sixth day. Careful examination failed to reveal any cancerous condition, although the macroscopic appearance was decidedly so.

CASE III.—Last year I read a paper before the Mississippi Valley Medical Society; reported a case of pregnancy four and one-half months with cancer in a woman 26 years old. The operation was performed March 13, 1901. Recovery and no recurrence a year later. Published in full in the *Journal of the American Medical Association*.

Miscellaneous; Phantom Tumor, etc.—CASE I.—Mrs. F. D., aged 30. After hoping for a long time, she became pregnant, but she increased so rapidly in size that at five months the abdomen was so extensive that she could breathe only with the greatest difficulty.* The case was very obscure and it was impossible to make a diagnosis. Her family physician thought it was an ovarian tumor, but I could not decide what it was, but agreed to make an exploratory celiotomy, as something had to be done. She was prepared and I operated April 10, 1894. Thinking that she was fully under the influence of chloroform, I began to make an incision and found that she was not fully under the influence of it. I continued, however, to open the abdomen while more chloroform was being administered. Just when I had the abdomen opened everything collapsed. The

abdomen contained nothing, simply a pregnant uterus. It was a case of phantom tumor. I closed the incision with kangaroo tendon. She made an uninterrupted recovery. The phantom was gone and she was delivered August 8 of a living child. She has been one of the most grateful patients I ever saw.

CASE II.—Mrs. J. D., aged 42; had one child nineteen years ago. Had menstruation for one year. Had been seen by a number of physicians, as she was getting very large, and a diagnosis of ovarian tumor was made; but on examination I found that in the anterior part of the uterus, between it and the bladder, a small fibroid tumor was situated. The cervix seemed to be large, but could hardly be reached by the finger. The situation was very distinct. I had some doubt of her condition, but thought that it probably was a fibrocystic tumor of the uterus. The question of pregnancy never entered my mind, as she had no menstruation for a year, and her family physician and others all suggested it to be an ovarian tumor. I operated October 1898, and found that she was pregnant about eight months. In the uterine walls there were a number of small fibroid tumors. I immediately closed the incision with catgut, but a premature delivery took place five days later of a living child. She made an uninterrupted recovery.

CASE III.—Mrs. W. A., aged 28, was four months pregnant. She fell from a street car and was brought home suffering from shock. She seemed to revive, but the next day was in pain and suffering from great shock. She was then brought to the hospital. The temperature was normal, but the pulse gradually increased to 150 and 160. Examination revealed a tumor in the cul-de-sac. I made a diagnosis of ruptured extrauterine pregnancy and immediately proceeded to operate. Getting down to the peritoneum, I was astonished not to see it black, and on opening there was no blood in the abdomen at all, but the uterus was retroflexed and somewhat adherent from beginning peritonitis. I broke up the adhesions and lifted the uterus to a normal position. I closed the incision with sterile catgut. July 21, 1900. She made an uninterrupted recovery and delivered five months later by Dr. Bell.

CASE IV.—This case shows how easily you can be fooled if you are not constantly on your guard. A physician brought a young lady to me a few years ago with the following history: She had irregular menstruation and a number of attacks of pelvic inflammation, especially on the right side. The last attack

about two or three months previous, when she was confined to her bed for three weeks, and had been ailing more or less ever since and was suffering a good deal of pain on the right side. From the symptoms and examination I diagnosticated adhesions, with exudate in the right side and probably involvement of the appendix. I suggested an exploratory celiotomy, loosening the adhesions and doing whatever I found necessary. As the young doctor was engaged to the young lady, a question of pregnancy never entered my mind. When I opened the abdomen, however, I immediately recognized pregnancy with adhesions on the right side. (There was no involvement of the appendix.) These were easily broken up, aristoI applied, and the abdomen quickly closed. She fortunately made an uninterrupted recovery. I was in great trouble indeed for subjecting the lady to such a dangerous operation, where the result might be serious. All the symptoms had been magnified to me, but I am sure perfectly unintentionally, as both the parties never suspected what the trouble was. However, she made a splendid recovery, but two months later aborted, it is claimed as the result of violent exercise.

Therefore I have had:

| | |
|------------------------------|----------|
| Appendicitis | 5 cases. |
| Fibroids | 4 " |
| Hernia | 1 " |
| Abdominal hysterectomy | 1 " |
| Ovariectomy | 3 " |
| Vaginal hysterectomy | 3 " |
| Miscellaneous | 4 " |

—or altogether 21 cases and 5 deaths, so that the mortality is over twenty-three per cent. This includes all my cases from away back. I think that to-day the mortality would be far less.

In conclusion I would say that all acute diseases requiring prompt operation can be operated upon just as well as if no pregnancy existed. Tumors that would interfere with labor should in all cases be operated upon, as there is far less danger in removing them during pregnancy than there is by non-interference and letting the woman go to full term. I have seen many most lamentable cases of the latter kind. Tumors above the brim of the pelvis, or which can be shoved above the brim of the pelvis, need not be interfered with; still, as a rule, all tumors take on a very rapid growth during pregnancy, and the increase in size may interfere with the various functions of life and then require surgical intervention.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY

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Stated Meeting, January 13, 1903.

The President, EGBERT H. GRANDIN, M.D., in the Chair.

RUPTURED ECTOPIC GESTATION.

DR. SIMON MARX.—I wish to present a specimen of ruptured intrauterine pregnancy of about eight weeks' duration. The specimen is interesting for the reason that the contents of the tube are hanging by its secundines (umbilical cord) from the opening in the tube. This opening is filled with a mass of chorionic villi. The specimen is unique in this direction, and shows very pretty objects from an embryonic standpoint. The history of the case is clear enough, with one exception, and that is an unusual one from my experience—the entire absence of hemorrhage throughout the course of the ectopic pregnancy. This has never noticed in the many cases of ectopic seen, and it emphasizes again very forcibly that any one symptom cannot be relied upon other than this symptom. We had the other two characteristic signs present, *i.e.*, tumor and pain.

Mrs. S., married ten and a half years. Never pregnant before, always regular and no history of pelvic disorder. Last pregnancy terminated October 29, when followed the usual symptoms of pregnancy—nausea, vomiting, etc. On December 22, after an unusual attack of vomiting, she felt a pain in the left side of the abdomen which lasted a few hours. She was well again until January 1903, when, again after an attack of vomiting, the pain returned with great severity, followed by a severe collapse. The following day I saw the case, and discovered an elongated tumor on the left of the uterus, while the uterus corresponded to the size of an eight-weeks pregnancy. A diagnosis of ruptured ectopic pregnancy was made and an immediate operation performed. The abdomen was full of recent blood clots, which were washed out by irrigation as much as possible. No vaginal drainage was used. The patient's convalescence was normal.

CHRONIC APPENDICITIS, WITH A PIECE OF EGGSHELL AS THE FOREIGN BODY IN THE APPENDIX CAUSING THE INFLAMMATION.

DR. HERMAN J. BOLDT.—Mrs. R., aged 45, had a ventral hernia operation done for descensus uteri, and the much-thickened appendix, which had been causing almost constant dull pain, was removed at the same time. On opening the appendix there

besides some fecal concretions, also a piece of eggshell found in it. This suspected foreign body was verified to be eggshell in the laboratory where a small piece of it was examined. Foreign bodies in appendices are extremely rare, and especially such as this. Some plastic operations were first done before the abdomen was opened. The patient is convalescing.

DIFFUSE SEPTIC PERITONITIS CAUSED BY RUPTURE OF THE UTERUS
BY A FIBROID WHICH HAD BEEN PARTLY PUSHED THROUGH THE
UTERINE FUNDUS DURING A CURETTAGE FOR HEMORRHAGE.

DR. HERMAN J. BOLDT.—This is perhaps a unique case. The woman had been advised to have the tumor removed by one of our colleagues in his hospital service, but left the hospital. She left another hospital for similar reasons. Her family physician then curetted her, maintaining that no force had been exerted by him with the instrument. Two days later she began to have intense pain in the abdomen, high temperature, and chills. He stated to me, when seen with him in consultation on the fourth day, that he felt the curette disappear three times and thought that he entered the Fallopian tube with the instrument; but the gentlemen who assisted him, after making a careful examination, came to the conclusion that it was a uterus bicornis and that the instrument had entered the other uterine cornu. The diagnosis of the presence of a fibroid was readily established, and the thought that the uterus had been perforated during the operation, giving rise to the peritonitis which was then present, was quite natural. She was transported to the hospital at once. On opening the abdomen the stench from the peritoneal cavity was so intense that it caused us to turn aside momentarily. After separating some loose adhesions from the pelvic organs, it was seen that the uterus had been ruptured by the fibroid, which partly extruded into the abdominal cavity. The tumor was gangrenous. On opening the uterus it was further seen (and as the specimen now shows) that the neoplasm had three perforations in it, which were caused by the curette. The uterus with tumor and adnexa was extirpated, the abdomen thoroughly flushed, and a sterilized gauze bandage was loosely packed in the pelvis and brought out into the vagina. Closure of the abdomen followed. The head of the bed was elevated, so as to allow the secretions to drain downward more readily. For two days the patient seemed much better, so that I thought she might recover. On the third day, however, sepsis again became more marked. On removal of the gauze from the pelvis about two ounces of very foul-smelling fluid, similar to that which was found when the abdomen was opened, escaped. From this time on the patient rapidly sank. It is my belief that had I made an opening in the abdomen beneath the stomach and there inserted a drainage tube, through which sterilized saline solution could have been used to flush the abdomen at intervals, and, instead of filling the pelvis loosely with gauze, put in a large glass tube through the vaginal opening

which before operation surrounded the cervix, the woman's might have been saved. This course I propose to follow. I again operate on a patient with a diffuse septic peritonitis would suggest that others try it when an opportunity presents. The elevation of the head end of the bed I consider very important in such instances for the reasons already given.

DR. J. RIDDLE GOFFE.—Two cases are on record where fundus of the uterus was perforated and the intestines drawn down with the curette. This case is decidedly interesting the fact that the remarkable feat was performed of reversing proceeding and delivering the contents of the uterus into peritoneal cavity with a curette.

DR. C. C. BARROWS.—I remember one case in which there four feet of intestine stripped from the mesentery and drawn down by the curette. When I saw the woman she was moribund. When I opened the abdomen I found an opening into the uterus scarcely big enough to admit the curette, yet through this opening four feet of intestine had been drawn down. I removed the denuded gut and made an anastomosis, but unfortunately the woman died.

DR. A. PALMER DUDLEY.—I do not know whether reference made to one of my cases or not. Still, I have had three cases. In one I was asked to curette a uterus, and I introduced an Emmet forceps and drew down a large amount of intestines which were lying in the uterus. Fortunately I enabled to pass them back into the abdominal cavity and called for Dr. Hanks to help me. He advised that we leave the woman alone, and not do an abdominal section, and sew up the uterus. The uterus was packed and the patient made a recovery and has had two children since.

DR. MALCOLM McLEAN.—I think it is quite pertinent to draw attention to the fact that accidents may happen even in the hands of good hands. Eight or nine years ago I presented a specimen to this Society of a six-months placenta which had been cured. A diagnosis had been made of some degeneration of the endometrium, and a first-class man curetted the uterus thoroughly, stated, leaving it perfectly smooth and nice, and then the patient was sent home. She then fell into my hands and I delivered her of a placenta. The point, gentlemen, is just this: A good and bright man may be at one end of the curette and not know just what the other end is doing. I think the curette must be a very uncertain instrument.

DR. SIMON MARX.—I remember two cases of sloughing fibroid following labor. One patient was six and a half months pregnant and then aborted. I was asked to remove the placenta. When I saw her she had a high temperature and was the victim of sepsis. When the hand was introduced into the uterus I found what seemed to be the placenta, surrounded by membrane and also at one point commencing detachment. The diagnosis of sloughing fibroid was made and the tumor was removed by

cellation. The mass removed was as large as the one presented to-night. The woman made a good recovery. Within sixty hours I saw a second case in which by the aid of the hand and forceps enucleation was accomplished. I remember the third case, seen three years ago. In this instance the physician had mistaken a sloughing fibroid for a retained placenta. I saw this case within twenty-four hours, as did also our President. The case was a hopeless one. These cases are not frequent, but it was peculiar that I should have seen two of them within a short time.

RUPTURED OVARIAN CYST PROBABLY CAUSED BY THE RUPTURE OF A SMALL SECONDARY CYST WITHIN THE LARGE ONE, WHICH HAD LARGE BLOOD VESSELS, THESE CAUSING VERY PROFUSE HEMORRHAGES; DEATH FROM SHOCK A FEW HOURS LATER.

DR. HERMAN J. BOLDT.—The patient, aged 19, had a severe attack of pain before seeing her in consultation. The diagnosis made by another colleague was a cyst with a twisted pedicle. When seen by me there was so much rigidity of the abdomen that a definite diagnosis could not be made. A fulness was felt at the floor of the pelvis, but the contour of an ovarian cyst could not be felt. On opening the abdomen a large quantity of bloody serum escaped, and the collapsed cyst wall made its appearance. Large clots of blood were still in the tumor. On opening the tumor the cause of the bleeding was seen to be from a small secondary cyst which was still filled with blood. No evidence of a twist could be found anywhere. The operation was of very short duration and very simple. It was said that the patient's pulse was good when she left the table. When it was looked for a few minutes later none was found. She did not rally completely, but died the same day. Nothing was found on opening the abdomen after death. A full autopsy was not permitted.

UNILOCULAR OVARIAN CYST; INFLAMED CATARRHAL APPENDIX INTIMATELY ADHERENT TO THE CYST; ON THE LEFT SIDE, HYDRO- AND PYOSALPINX COMBINED IN THE SAME TUBE WITH AN OVARIAN ABSCESS; SECONDARY ABSCESS BENEATH THE OMENTUM.

DR. HERMAN J. BOLDT.—The history is brief. The patient, 43 years old, single, had been ill about eight years, complaining of pain in the lower abdomen; she began to menstruate at the age of 12 years. She was always regular until five months ago, since when she has not menstruated. The pain of which she complained was so great that she was bedridden a great part of the time. Bimanual examination revealed the uterus to be fixed, but not increased in size. Firmly adherent to what appeared to be the fundus was an indefinite tumor; to either side of this, and also intimately connected with it, were tumors; the one on the right side was the size of an infant's head, that on the left

was about one-half as large. These were thought to be ovarian tumors. On opening the abdomen the omentum was found to be much thickened in its lower part and very firmly adherent to the pelvic walls and intestine. When separating the adhesions which bound it to the symphysis, about two ounces of pus escaped. This was shown to be in the fold of the omentum and did not seem to have any connection with either ovarian tumor. An upper boundary was made up of the fundus of the uterus and intestine, and the lateral boundaries of adherent omentum. After sponging out the pus and separating the adhesions it was possible to get at the right ovarian tumor. It was also found adherent, and the large, congested appendix was so firmly adherent to it that it was necessary to remove it from the cecum before the tumor could be enucleated. On the left side the uterine tube and thirds of the tube was distended to about six times the normal size (hydrosalpinx). The remaining part was distended with pus (pyosalpinx). The ovary was four times the normal size and distended with pus. This condition had no connection with the tubal abscess. Such condition, in which the tube is distended and one part of the sac is changed into hydrosalpinx and the other into pyosalpinx, must be very rare. I have never seen it before. Further, the intra-abdominal abscess, which in all probability was caused by an infection from the tube or ovary, it was distinctly separated from these structures by thickened omentum—must likewise be looked upon as very unusual. The patient is convalescing. An abdominal-wall abscess interrupted the otherwise normal recovery.

CARCINOMATOUS UTERUS; ABDOMINAL HYSTERECTOMY; DEATH FROM
INTESTINAL PARESIS ON THE FOURTH DAY.

DR. HERMAN J. BOLDT.—The patient, aged 58 years, had been treated for atypical bleeding for one year. The diagnosis of cancer was readily made even before resorting to a microscopic examination of the breaking-down neoplasm. At first it was thought that only a palliative operation could be done, but examination revealed the feasibility of a radical operation. The upper third of the vagina was first detached and closed beneath the cervix. Because of the immobility of the uterus and the smallness of the vagina, further attempts to remove the organ by vaginam were desisted from and the abdomen was opened. A typical operation was then done. The operation was difficult and of long duration, to which may probably be attributed the suppression of urine which was present during the first forty-eight hours. After the flow of urine became established the patient was in a fair condition, so that recovery was looked for. The only unfavorable feature then was our inability to get the action of the intestinal tract. Numerous high enemata had no effect. The abdomen was beginning to become distended. On the fourth day the nurse discovered that the dressings were moistened by a sero-sanguinolent fluid. On removing the dressings

ings it was found that the entire wound had been burst open by the enormously distended intestines, which were to a great extent outside the abdominal cavity. It was impossible to return them until the small intestines had been opened and the gas and then feces made to escape. After closure of the opening made, the intestines were readily returned to the abdominal cavity and this closed with silkworm sutures. Despite further treatment, the patient sank and died at the beginning of the fifth day after operation. An autopsy failed to reveal any other cause of death than the paresis of the intestines. The ureters, which during the time of urine suppression were thought to have been injured, were found to be intact.

DR. BROOKS H. WELLS.—In cases where the patients are becoming dangerously tympanitic, a high enema of an ounce of alum in a quart of hot water produces a marvellous contraction of the intestines and apparently does no harm to the gut. It may be repeated several times at intervals of an hour or two. If anything will make the intestinal muscle contract this will.

DR. E. H. GRANDIN.—I have been unfortunate enough to have seen a number of such cases, and I have tried the alum in the way referred to by Dr. Wells. I tried this method in two cases and they both died, as all others did under any treatment. This last summer, after a very desperate hysterectomy for fibroid and pus tubes, the patient was left in the hands of her family physician. Symptoms of intestinal paresis supervening, after testing the usual measures without avail, this physician concluded that, since the condition was due to spasm, he would relax that spasm, and he gave the hydrobromate of hyoscyne until the pupils became as big as saucers. This patient recovered. This is one case in which the trouble yielded to drugs. It is in the line of reports that come to us from Europe about the use of large doses of atropine in these cases, used to its physiological extent.

INTERSTITIAL MYOMA; ABDOMINAL MYOMECTOMY; UNINTERRUPTED RECOVERY.

DR. HERMAN J. BOLDT.—The patient had become very anemic from the profuse metrorrhagia which had been present for about two years. Although it was intended to do a vaginal myomectomy, it was found impracticable on account of the size of the tumor and narrowness of the vagina. It is always more conservative to resort to the abdominal operation if there is such disproportion present. The operation can be done without mutilation of the uterine structure, and if all the work is done with proper technique the prognosis is almost invariably good.

VAGINAL HYSTERECTOMY FOR RECURRENT ADENOMATOUS HYPERPLASIA OF THE ENDOMETRIUM ASSOCIATED WITH PROCIDENTIA.

DR. HERMAN J. BOLDT.—The patient is 45 years old and has had a number of curettings done. The examination of the

scrapings always showed a benign condition, yet the recurrences during the last year before operation were of rapid accession, so that, considering the age and the fact that the prolapsed uterus also caused much inconvenience, it was thought advisable to remove the organ. It is not unusual to find frequently recurring adenomatous inflammations finally degenerate into malignant changes, so that a radical operation, in the age of the patient is more than 40, is indicated. By frequent recurrences is meant when the pathological changes of the endometrium recur probably four times or oftener within six months after a thorough curetting and local treatment with iodine or carbolic acid.

DR. RALPH WALDO.—I had a similar case. The patient has been in the hands of a good many practitioners, many of the most prominent gynecologists. She had been curetted repeatedly without any benefit. Finally I repeatedly but cautiously applied a solution of nitrate of silver, sixty grains to the ounce, to the interior of the uterus. I saw this same woman twenty-four hours ago, and she has gone three years without any return of trouble and is in a normal condition so far as any symptoms of the contrary show.

FIBROID TUMOR OF THE UTERUS.

DR. J. RIDDLE GOFFE.—The fibroid tumor which I show was removed from a private patient, Mrs. R. M., a large, strong Jewess, who presented herself at my office November 1 last with the following history: Aged 45 years; married twenty-six years; five children, seven, the last ten years ago; miscarriage five years ago, induced at the third month. All parturitions were normal. She was curetted after the miscarriage. She has never had pain, but menstruation has been excessive since the miscarriage and during the past year she has flowed almost continuously. The brother of the patient, who is a physician, discovered the tumor eighteen months ago. It was just rising above the top of the pelvis at that time. Upon examination a solid fibroid of the uterus, filling the pelvis and reaching to the umbilicus, was discovered. The mass had a strong inclination to the right side. It was found at the operation that this was due to adhesions on that side. November 6 a supravaginal amputation of the uterus was done, the stump of the cervix and all raw surfaces being covered with peritoneal flaps according to the method. One ovary was left. The appendix was removed. The patient made an uneventful recovery and left the sanitarium at the end of three weeks, on her feet, walking to her house several blocks distant. The specimen seemed worthy of presentation on account of the remarkable development of tissue in the interior of the uterine cavity. As you see, it is packed away in layers of leaf lard and gives the suspicion of malignancy. The pathologist reports that this mass is simply fibroid tissue. The line of cleavage between it and the uterine wall is very distinct.

where the incision has been made, and as we prolong it to the fundus we find the attachment of this intrauterine polypus. The question arises, would it have been possible in a case like this to do conservative work—*i.e.*, myomectomy—and so free the uterus not only from the several intramural fibroids, but also the submucous polypus? I believe that it could and still preserve a functionating uterus. In a woman 45 years of age it probably would not be wise to introduce the slightest additional danger that would necessarily be inadvisable in the conservative work. But in a young woman anxious for children the additional risk might be justifiable. It is only by studying conditions such as we find in this specimen that we are enabled to decide upon the course to pursue when the desirability of saving the uterus is presented.

I think that tumor could have been removed through the fundus by making an incision down the posterior wall of the uterus, thus affording room for enucleation and control of hemorrhage. It would have added an additional risk to the patient, and in a woman 45 years old and the mother of nine children one should not consider such an operation in preference to a total hysterectomy.

DR. H. J. BOLDT.—With regard to the possibilities of the operation, that should not be considered, but only what is best for the patient. If one looks at that specimen he will undoubtedly conclude that it would be a very hazardous procedure to attempt to do a myomectomy. Even Dr. Goffe will concede that. Its attempt would certainly have risked the woman's life much more than the operation done by Dr. Goffe.

DR. GRANDIN.—Dr. Goffe admits that, Dr. Boldt.

SAC OF A RUPTURED OVARIAN CYST.

DR. J. RIDDLE GOFFE.—The second specimen is a sac of a ruptured ovarian cyst which has some points of interest. The patient from whom I removed it was sent to my office as a hospital case with a diagnosis of fibroid tumor. I examined her rather hurriedly, but with sufficient care to exclude pregnancy, and sent her to the hospital for my Saturday morning clinic, with the intent to discuss the diagnosis before the class after the patient was anesthetized. When prepared for operation and fully anesthetized the abdomen presented a high, symmetrical enlargement, being distended to the fullest extent, so that, with the patient lying upon her back and the legs extended, it was absolutely incompressible. The bowels had been thoroughly cleared out by cathartic pills and were crowded up under the diaphragm and gave the tympanitic note only dully in the epigastrium. Everywhere else the abdomen was flat. Per vaginam the uterus was fixed in the normal position and had a firmly resisting mass filling the left pelvis and reaching across Douglas' pouch to the right. By flexing the knees and throwing first on one side and then on the other, the note in the uppermost flank became tym-

panitic. This indicated free fluid in the peritoneal cavity. patient was a single woman, 34 years of age. Menstruation appeared at 11 years and was regular and normal until two years ago, when she began to menstruate every two weeks. She treated locally and relieved. In April last she first noticed her corsets were too small. She was told then by her physician that her uterus was tipped over, and was treated with tampons for three months. In August the patient noticed that when she stooped over something moved inside of her. She was again examined and told that she had a fibroid tumor, and a ring was inserted. Six weeks ago she began to have frequent micturition and for the past two weeks has had nausea and occasional vomiting. The tumor has grown rapidly for the past two months. I made a diagnosis of probably sarcoma of the left ovary and proceeded to do a laparotomy. On reaching the peritoneum I pointed into the wound and presented the appearance of a chronically edematous intestine. It was dark in color and foreboding. I finally summoned up courage to reach it with a knife, and there spouted out a bloody fluid with great force. I gradually enlarged the incision and allowed the fluid to freely escape to an amount of about two gallons. This character of fluid confirmed me more and more in my idea of malignancy; but when the tumor had been removed by sponging this sac of an ovarian tumor with a four-inch rent in it lay at the bottom of the pelvis, to which it was firmly glued. It had also attached itself to the right ovary and incorporated it within its walls. The peritoneum about the tumor and adhesions was edematous and tore like wet paper, so that a large rent was made into the right of the rectum and the sigmoid colon. The ureter was stripped of peritoneum for the distance of four inches. The tumor and right ovary were removed. Drainage was carried through Douglas' pouch into the vagina and the abdomen closed. The torn surfaces oozed badly. The patient is making a nice recovery. The pathologist pronounces the tumor a thick-walled ovarian sac in a condition of acute inflammation. Questioned as to the patient since the operation, I learn that the last week in August she had a bad fall from a hammock and was quite lame for a few days up by it for two or three days, and that since then the tumor has grown rapidly. That was doubtless the occasion and date of the rupture, although the torn edge of the sac seemed to show signs of a recent rupture.

DR. C. C. BARROWS.—I have seen two cases of ruptured ovarian cyst. One of these occurred in my office, the patient coming to me from time to time. While I was making a final examination prior to operation, the woman cried out in sudden pain and went into collapse. I gave her the proper restoratives and sent her to the hospital, where I removed a ruptured ovarian cyst. I did not use more force at that time than I had on any previous occasion. The cyst had very thin walls and ruptured easily. The second case occurred in my clinic at Bellevue Hospital. I had selected this case for the clinic because I thought it was

prove an interesting one, for it was easily demonstrated. It was a suppurating ovarian cyst. Several present had examined the patient, and when I examined the woman I found no tumor, and said, "The tumor has gone." The abdomen was opened and a suppurating ovarian cyst about the size of the one presented to-night was found that had ruptured.

DR. ANDREW F. CURRIER.—Dr. Jarman's narration reminds me of a similar case which occurred in the practice of the late Dr. J. B. Hunter. The tumor was one of considerable size, which ruptured under the examination. The patient remained in the hospital, I think, only a few weeks and then the cyst refilled. An operation was performed and the cyst removed. It was somewhat remarkable that so little force should be sufficient to rupture the cyst wall. I feel as Dr. Jarman does, that many cases diagnosed as ovarian cysts are ruptured in this way. I should think, too, that with the cause remaining they would always refill, except in the case of parovarian cysts, in which, as is well known, the fluid does not reaccumulate.

DR. H. J. BOLDT.—I have seen two other cases besides the one reported this evening. In one the ovarian cyst ruptured during the examination in the office and ran pretty much the same course as did the one reported by Dr. Jarman. The other case was operated upon. The thickened wall in Dr. Goffe's case is probably due to the fact that the cyst had ruptured some time previously, before the patient was operated upon, and there had resulted a local peritonitis which produced inflammatory changes in the wall of the cyst.

DR. A. PALMER DUDLEY.—I want to correct what may be a wrong impression produced by some in saying that these ruptured cysts are not dangerous. I think it is best to open the abdomen as soon as we find that such a rupture has occurred, for we do not know whether or not the fluid is simple, infectious, or blood, dermoid, pyosalpinx, or hydrosalpinx. I think it is well always to open the abdomen and make as clean a piece of work as you can and not trust to Nature.

DR. JOSEPH E. JANVRIN.—Once in a while the ovarian cyst ruptures into the bladder or intestines. I have had one case of each. I have never had one rupture into the abdominal cavity. The one that ruptured into the bladder occurred fully twenty years ago and was an interesting case. There was a large ovarian cyst the size of a man's head. So far as could be made out by examination, it was a monocyst. I examined her in my office and made preparations to operate within a few days. Forty-eight hours afterward the husband came to me and stated that his wife was passing too much water from the bladder. She continued to pass it very freely, many quarts within a period of twenty-four or thirty-six hours. All evidences of the tumor had disappeared and nothing remained after that. I do not think there could have been any mistake made in the diagnosis in this case. The other case was also met with twenty years ago. Here the ovarian

cyst had ruptured into the intestines and the contents had died off through the rectum. This case also did not refill.

DR. J. RIDDLE GOFFE.—The best authorities say that with such cysts rupture and disappear they are parovarian, intraligamentary, and can be cured by simply tapping. We all know, however, that a true ovarian cyst is never cured in that way, that rupture of such a cyst adds an additional complication of more or less serious character.

REPORT OF A CASE OF ACUTE SEPSIS.

DR. C. C. BARROWS.—Alice B., married, 26 years old, a negro, was admitted to Ward 22, Bellevue Hospital, on Christmas at 4 P.M. She stated that four weeks before she was admitted when she was six months pregnant, she fell down-stairs, striking on her abdomen. Since that time she had felt no fetal movements. Two weeks after her fall she began to feel weak and suffered from loss of sleep and appetite. These symptoms increased and became so severe that she was obliged to give up work and come to the hospital. At the time of her admission she was having labor pains, which she said had been going on for two hours. On admission she was having a chill and her temperature was 104.3°, her pulse 124, and her respiration 30. There was a foul-smelling, bloody discharge from the vagina. On December 26, at 6 A.M., she was delivered of a decomposed, macerated female fetus. The secundines were expelled at 6:20. Foul placenta, and membranes were macerated and decomposed, and a foul odor. Patient had a severe chill at 7 A.M., and her temperature, which at 3 A.M. had been 99.4°, was found to be 101°. She had after delivery an intrauterine douche of 1:10,000 potassium chloride of mercury. At 2 P.M. her uterus was irrigated with hydrogen peroxide followed by normal salt solution. A considerable quantity of clots and decomposed shreds was removed by the douche. She was then transferred to Ward 23, to the gynecological service, where she was curetted and a large quantity of decomposed and foul-smelling tissue removed.

The patient then lapsed into a state of profound sepsis, evening temperature being never less than 105°, and on one occasion 106.8°. The local morbid conditions disappeared under routine treatment of intrauterine douches and drainage, but the patient's general condition became rapidly worse, and when I first saw her, on January 2, the ninth day of her disease, she presented the picture which has always heretofore meant to me rapidly approaching dissolution. The patient lay in a semicomatose condition, with low, muttering delirium, and, when aroused with difficulty, declared that she felt well. Her pulse was feeble and ranged from 150 to 160. Her respirations were rapid and labored, her lips and tongue were dry and parched, and her rectal temperature was 108°. The house gynecologist reported to me that a blood culture had been made by Dr. Burr of Cornell University, in four flasks of bouillon, 10 cubic c

metres of blood being taken on December 30, and the result showed a pure culture of streptococcus. On admission her leucocytosis was 18,000, and at this time 15,500.

At this time, with the pulse 160 and the temperature 108° , I attempted to inject into the median basilic vein one litre of a 1:5,000 solution of formalin. The delirium and restlessness of the patient made the operation a difficult one, and, as a result, the full litre was not injected, a small quantity of it being lost. At a fair estimate 500 cubic centimetres of the solution were thrown into the circulation. This was at 5 o'clock in the afternoon, and the temperature and pulse rate began immediately to improve, and at 9 o'clock on the following morning the temperature had fallen from 108° to 101° and the pulse from 160 to 104. At 12 o'clock the temperature began to rise, so that at 9 P.M. it was 102.4° . It then plunged downward, until at 5 in the morning of the following day it only recorded by rectum 95° . But the pulse had improved and was now 86 and stronger and fuller, and the patient's general condition was vastly better. From 95° the temperature gradually rose until at 9 P.M. it was 102° with a pulse of 110. At 5 in the morning it was normal, and by noon of the same day it had reached 103° . I then injected into the opposite vein 750 cubic centimetres of the same solution, when the temperature fell to normal, where it has practically remained since.

On January 3, the day following the first intravenous injection, a second blood culture was made and no streptococci were found. On January 8, two days after the last operation, the blood culture was still negative. From this time on the woman made a rapid convalescence and is now well.

Such cases as the one here recorded come to Bellevue Hospital at all times, and during the sixteen years that I have been connected with that institution I have seen every method of treatment known to science employed. Serum therapy, from which we expected so much, has with us proved absolutely inert. In using the method I have described to you for the first time, I have purposely chosen a case about whose condition there could be no question. It was acute general septic infection of the profoundest type—a condition which has up to now, I may say, always been promptly followed by death. This woman has recovered. With the exception of a slight chill at the time of the second intravenous injection, such as we not uncommonly get from a similar use of the normal salt solution, there was no unpleasant reaction from the treatment. There has been no disturbance of the venous or arterial system in any way, and her secretions and excretions are unchanged.

I need not say that I am anxiously awaiting another opportunity to try this method of treatment, and I have no doubt, if the source of infection has been removed, it will prove as gratifying in its results as it has in this case.

DR. GEORGE L. BRODHEAD.—I should like to ask Dr. Barrows

whether efforts had been made to deliver this woman before she came to Bellevue; if not, whether the membranes had ruptured before she came in; and, if so, how long before admission to hospital.

DR. C. C. BARROWS.—I did not see her until the ninth day of the disease. She had been in another ward in Bellevue, and I had examined her and said that she presented the ordinary signs and symptoms of a six-months pregnancy, and so they discharged her. She went home, only to return three days later. She was readmitted and the house gynecologist reported to me that when she was admitted she was in labor, with a temperature of 101° and a nasty, foul discharge occurring from the vagina. I cannot presume the membranes had ruptured prior to her admission.

DR. A. PALMER DUDLEY.—I want to say that six years ago I brought to this city some of the first samples of formalin used here; I brought them from Geneva, Switzerland, where I had learned of it at the International Congress of Gynecology. I made quite a number of experiments with it, and I think there was a wonderful amount of good in it, as I think of it now, which we do not know much about. A weak point in the treatment reported to-night is that the curative ability of formalin cannot be determined because of so much local treatment being employed at the same time. We cannot eliminate the beneficial effect of the local treatment and attribute them to the general treatment by the use of formalin. Apropos of this I want to say that I think we do more harm than good through irrigations of the uterus. We produce a chill varying in duration, followed by a fever, hour by hour by rise of temperature; in this way we disseminate the poison. I think this should be eliminated in the treatment of these cases. I think the doctor has given us something to think about which is an eye-opener. We will all take some of it in our hands and we will be as conservative as he is in our reports of results obtained. If we subject the women to intravenous injection of a 1:5000 solution we then should leave the uterus alone.¹

A NEW VAGINAL AND UTERINE RETURN-FLOW IRRIGATOR MADE OF GLASS.

DR. J. CLIFTON EDGAR.—This return-flow catheter is made of two pieces of glass tubing, grooved on the inner side of each tube to increase the area for the return flow, and is essentially different from the Bozeman, Fritz, Olshausen, Tucker, or Auvassian return-flow tubes. Experiments with strong permanganate solutions on a uterus and vagina from a cadaver show that a strong stream (four feet elevation of the fountain syringe) can be used without increasing the intrauterine pressure or forcing fluid through the tubes. The advantages of the irrigator are: (1) simplicity; (2) cleanliness; (3) readily freed of air bubbles; (4) avoidance of excessive intrauterine pressure and regurgitation with

¹Discussion to be continued at next meeting.

tubes; (5) free and ample flow of water; (6) avoidance of introduction of air; (7) not likely to become obstructed. The tubes are made of two lengths, eight and ten inches respectively.

Dr. Edgar also showed one of Bossi's new four-bladed uterine dilators, and demonstrated its use upon a rubber model of a partially dilated cervix. Although Dr. Edgar had had two opportunities to use the instrument within the past few days, he had hesitated to do so, preferring to rely upon the tactile sense of the fingers in the bimanual method of dilating the cervix.

Dr. Edgar compared the Bossi with the two-bladed dilator of Gans, preferring the latter because the hand could be introduced into the vagina with the latter to note the amount of force exerted upon the cervix.

VERSION OR FORCEPS—WHICH?

DR. S. MARX read this, the paper of the evening, and he wished to be understood as being unqualifiedly and absolutely in favor of version in those cases in which the head was above the brim, and that the application of forceps in these cases was never countenanced. After describing what was generally meant by the so-called "high operation," he, in his classification of the various forceps operations, said that he had always considered but three forceps positions of the head, defined according to the anatomical relations of the head to the bony as well as the soft structures of the genital tract, as follows: (1) The high forceps application, with the head entirely above the brim, freely movable or not, as the case may be, or the head engaged by its smaller segment, whether or not movable. Such a position of the head constitutes the only true high forceps application, and this was in accordance with the teachings of the entire German school. (2) Median forceps application, with the head well engaged and yet not on the pelvic floor—*i.e.*, the greater segment of the head was still above the ischial spines. (3) The low application, in which the head is on the perineum or where the greater segment of the head is below the ischial spines. He considered this both an anatomical and clinical classification, and believed that if this arrangement of the head positions was followed the use of the forceps would become very much simpler and more concise. The indiscriminate use of the term high forceps was due, he believed, to the fact that this anatomical classification was seldom considered, and, as a result, many of the cases called high operations were really simply cases of median operations. The high operation was very dangerous on account of the injury to the tissues and was to be condemned, not only for this reason, but also because in an overwhelming majority of cases the woman can be delivered by an operation which is safer to both mother and child, that is easier of application, that is surer of success—namely, version. From the standpoint of experience and safety he had always leaned toward version and away from forceps. Of course personal experience

will enter largely into the consideration of the treatment of the case. He did not sanction the application of forceps to the head above the brim except in cases where there was a rupture of the uterus impending, or, generally speaking, when he had to deal with a tetanized organ, one from which the waters had long escaped. In all other cases he preferred to perform elective version, and this for fear of causing a rupture in threatened and tetanized cases or increasing the tear in already ruptured. It should be remembered that in most of these cases we are dealing with a prolonged, fruitless, and painful labor, and the child has often suffered so severely that it is almost or already been sacrificed, and, under these conditions, elective perforation was to be preferred. He did not believe that destructive instruments were yet obsolete; they still had a large field for application. With a dead fetus, or with one that is alive but whose chances for life are very slight, he could not see what could be gained by a difficult high operation or elective version; you certainly could do the child no good and would do the mother much harm, which latter could be much diminished by lessening the bulk of the unborn fetus.

We must admit that failure of the presenting head to enter the pelvis almost always means that there is some abnormality, either of the presenting part or of the pelvis, and, under these conditions, there were three factors to be considered, viz.: 1. A malposition of the presenting part. 2. A pelvis which was relatively too small or solutely contracted. A relatively contracted pelvis was one not large enough to permit the passage of an average-sized fetus, yet too small to allow of complete engagement and passage of an overgrown fetus or large-sized head. 3. A condition in which the pelvis was estimated to be about the normal, in which the head of the fetus was entirely too large for successful engagement and passage. In his experience minor pelvic or rectal pelvic contractions were not uncommon, and it was unfortunate that we had no positive way of determining their existence before or even at the onset of labor. When present they were not recognized until that time when the severest lesions had already been effected. Therefore an early exploration of the pelvis should be made in order to search for the cases of non-engagement, in order to anticipate possible dangerous complications. Such an investigation should be elective and early, and not an investigation, not necessarily operative. This he did not consider to be meddlesome midwifery, but scientific obstetrics. In the cases just mentioned the mechanism of labor was different from normal; instead of engaging obliquely with fair flexion the head comes down transversely and in a condition of hyperflexion. In his experience most pelvic contractions were anterior, with compensatory increase in the transverse diameter. This was the result of Nature's attempt to overcome the dysmechanism which in most cases was fulfilled, when the case would go on to a practically normal delivery. But often, at a critical moment

Nature's attempt becomes exhausted and delivery fails. Now, if the forceps be applied, pressure is exerted from side to side upon the fetal head, which, in his experience, was not compensated for by an overlapping of the bones; therefore this would not increase the biparietal diameter of the head, which was the belief of many prominent writers. According to direct observation, pressure from side to side causes an increase in the biparietal diameter, which conforms to the contracted anterior-posterior diameter of the pelvic inlet and so increases the pelvic contraction both relatively and absolutely. For this reason version was elected in all cases, with the exceptions already mentioned when the head was above the pelvic brim. When version is done, the after-coming head descending as it should, transversely, pressure is exercised upon the biparietal bosses by the pelvic contraction in the anterior-posterior diameter, diminishing their diameter where exists the greatest contraction; therefore, he got a compensatory side-to-side enlargement of the head which conformed to the enlarged transverse pelvic diameter. This explains the superiority and greater safety, for the child, of version over true high forceps operation in cases where the head is above the brim, especially in cases of women whose pelvis are of the minor contraction type. It was important to remember that, in the performance of version, the head, in its largest diameter, should pass through the largest diameter of the pelvis, not *vice versa*. Again, in order to insure the gaining of a living child, there should be a complete and permanent flexion of the after-coming fetal head during the entire time it is passing through the pelvic tract. This can be done only by firm and intelligent fundal and suprapubic pressure, maintained as soon as the head begins to descend. If this is not strictly followed, and the child dragged through the canal by pulling upon the legs, the head will very likely become extended, the arms liberated, and the child's life sacrificed. He advised more of the *vis a tergo* and less of the *vis a fronte*. He referred to the superiority of version over the high forceps in such conditions as placenta previa, accidental hemorrhages, eclampsia, etc., and asked why such means would not hold good under the conditions he had attempted to make clear above. If the premises he took were correct in one direction they were certainly so in the other. To his mind this was a very forcible argument against the arguments of those who act differently from that which we directly advise, and would show the inconsistency of their beliefs. In those rare cases in which the head was above the brim, and which did not admit of version either because of its utter impossibility as from a completely spastic uterus, or threatened rupture, then high forceps should be attempted if the child be alive; if dead, then use the perforator. If the child be in good condition he preferred the axis-traction forceps of Tarnier. In those cases in which the head fails to engage, the presumption was that it was caused by some abnormality; there-

fore this faulty position must be corrected before operative interference with the forceps be instituted, if at all possible. In minor, and even major, pelvic contractions he had most gratifying results in using the Walcher position. In a minor contraction a well-sustained extension position would make what would otherwise be a difficult forceps operation one of great ease; the hanging must be a complete one, with the tendency for the patient to fall from the table; to prevent this a well-adjusted sling should be used. In case the Walcher position failed to give the expected results the following procedure had, in many instances, made delivery possible. The forceps was applied in the usual way with the patient in the ordinary obstetric position. At the moment when the first traction was made the patient was suddenly thrown into the Walcher, while the effort at extraction were continued. The rationale and success of this method seemed to depend upon the forced and exaggerated extension by causing the limbs to fall, and, as the result, a greater hyperextension was produced than was obtained by the sustained Walcher. He recalled two instances that could not be delivered by any means known, even the sustained-extension position. Suddenly throwing the patient into the Walcher position gave surprising and happy results, in that the two patients delivered of living children. The one delivered by version lost all her previous children in labor because of a contraction down to three and a half inches. Cesarean section was advised but refused. The child was very large, weighing over twenty pounds. A bad prognosis was given. The version was an effective one, in an intact fruit sac, and in the Walcher; but in this position and firm pressure from above, the head could not be extracted. Rapidly placing the patient in the flexed position, the legs were suddenly thrown into the extension position with the result that, with a sharp snap, the head was rapidly delivered and the fetus was born alive.¹

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

*Stated Meeting, November 21, 1902.*²

The President, C. S. BACON, M.D., in the Chair.

DR. FRANK B. EARLE reported

TWO CASES OF EXTRAUTERINE PREGNANCY AT TERM.

The cases are reported for the purpose of emphasizing some of the points already known, rather than with the expectation of presenting anything new.

¹Discussion to be continued at next meeting.

²Concluded from p. 236, February JOURNAL.

Case I.—Mrs. Alice G., aged 40, married at 21. First pregnancy at 23, normal; second at 26, normal; third at 32, normal.

August 12 to 16, last menstruation. October 1, was taken with severe pain (colic-like) over the abdomen. Became very weak and cold, with profuse sweating, vomiting, distended abdomen, and scanty bloody discharge. Was seen by her physician several times first day. Was sick in bed two weeks. November 11, recurrence of all the former symptoms except flowing. November 25, consulted Dr. O. He said: "She has a tumor on the left side the size of an orange," but was unable to determine whether it was a distended tube, a fibroid, or an ectopic gestation. December 8, consulted the doctor again, who said that the tumor was no larger, but that the uterus was larger. January 10, again consulted the doctor, who, after examination, decided it was uterine gestation. January 25, third attack of pain, not so severe as formerly, accompanied by no flow; patient sick only a few days. April 20, nausea, vomiting, and diarrhea. April 30, was seen by Dr. N., who heard distinct heart tones and felt motion. May 6, patient suffering greatly from nausea most of the time. Severe pain in lower part of abdomen, especially in the rectum and vagina. May 15, had apparent labor pains. Motion ceased. The doctor who then saw her was unable to decide whether the baby was alive, and prescribed an abdominal binder for relief of the abdomen. June 3, seen by Dr. Earle. Abdomen enlarged nearly to size at full term of pregnancy. Fetal heart tones and quickening absent. Slight bloody discharge (odorless). June 9, patient nauseated; temperature slightly increased. June 13, sent to hospital for examination by gynecologist and with the expectation of being operated upon. June 15, patient was sent home with the statement that it was a case of normal pregnancy, with probable death of the fetus. June 20, discharge of blood, some clots, pronounced odor. June 25, seen by Dr. John Bartlett in consultation; diagnosis uncertain. June 29, seen by Drs. Henrotin and Bartlett. Diagnosis, ectopic gestation and death of the fetus. July 2, patient was removed to the Polyclinic and operated on by Dr. Henrotin. Fetus and placenta removed. Patient made an excellent recovery, sinus remaining open for a number of months, finally closing after the discharge of a small silk ligature.

Points of Interest.—1. Long period of sterility, eight years.
2. Date of primary rupture, forty-one days after menses; date of secondary rupture, eighty-nine days after menses ceased.
3. Occurrence of apparent labor pains at the end of gestation.

Case II.—Mrs. R. N., age between 34 and 39, married eight years. No previous pregnancy.

January 10 (about), last menstruation. April 20 (about), was sick for ten days with what the physician in attendance termed "congestive pains." Late in September patient came under the observation of Dr. Tagert for a troublesome cystitis. On October 10 patient seen in consultation with him. She was then

having regular pains at intervals of five minutes. External examination: Fetal heart tones good; abdomen so tender that external examination was unsatisfactory. Examination under anesthesia: Head in pelvis; sutures and fontanelles palpable through what appeared to be a thin lower segment; os to rim above symphysis, admits one finger. Patient was thought to be in the beginning of labor. Owing to her extreme nervousness an anodyne was advised. She passed a fairly comfortable night. On October 18, the patient was again seen in consultation with Dr. Tagert. Contractions occurred frequently and apparently normally, the abdomen resembling that of normal labor. Patient was positive that she had not felt motion for several days. Heart tones absent. Examination under chloroform: Os still to rim and above symphysis. In order to make a satisfactory examination it was necessary to introduce the entire hand into the vagina. External os dilated to the size of half a dollar. Internal os would not admit finger, but under moderate pressure the os was readily gained to the uterine cavity, which was empty, save for the presence of what appeared to be decidua and débris. Patient was sent to hospital for operation, the diagnosis resting between ectopic gestation and gestation in a rudimentary cornu. Upon arriving at the hospital her condition was such that it was deemed unwise to operate at that time, there was a further delay in accordance with the prevailing impression that a case of ectopic gestation presented more favorable conditions for operation after the lapse of a few days when the circulation in the placenta had ceased. The record sheet shows that from October 18 until October 24 the patient's temperature was slightly elevated, the pulse ranging from 90 to 116; it also shows that vomiting was frequent, that the patient was suffering more or less constantly from pain in the abdomen, especially on the left side; it also shows that she was able to take only a small quantity of nourishment. Under these conditions, and believing that some time had elapsed since the death of the baby, operation was decided upon. The question as to choice of route was discussed and the abdominal preference was chosen although the vaginal was carefully considered. On October 24, contractions frequent, tumor rising upward with each contraction. Patient operated upon by Dr. Tagert, assisted by Drs. Brown and Earle. Abdomen opened and child weighing five and three-quarter pounds, and placenta and membranes weighing three and three-quarter pounds, removed from left side. Patient died sixty-six hours after the operation, never fully recovering from the shock. Owing to the regularity and force of the contractions, much interest centred in the source of the power producing them, and, with the hope of determining this point, the gestational specimen was sent to Dr. Herzog, who makes the following remarks: "The sac of the full-term ectopic gestation, particularly in some places where it is several millimetres thick and quite firm, shows bundles of hypertrophied non-striated muscle cells."

fact, these cells appear hypertrophied to almost as high a degree as is found in the uterine muscularis at term. In these places the tissue consists almost exclusively of such hypertrophied muscle cells; the nuclei have stained well, and they present in every other respect the picture of healthy cells which might well have been able to bring about energetic contractions of the sac at the point or points where they are found.

(Signed) M. HERZOG."

Points of Interest.—1. Long period of sterility. 2. Absence of severe symptoms at time of rupture, which was over three months from date of last menses. 3. Should not the diagnosis have been made on October 10, when the os was found in such an unusual position? 4. Was operation indicated on October 24 or later? 5. Would the vaginal route have been better? 6. Are we justified in assuming that the muscles of the tube or ligament are developed sufficiently to account for the regular and apparently normal contractions?

DR. MAXIMILIAN HERZOG.—I have very little to add to the report read by Dr. Earle. I was rather surprised to find so much hypertrophy of the muscle fibres in this case, because in the many specimens of ectopic pregnancy which I have examined I have, as a rule, not found it. Generally the tubal muscularis in ectopic pregnancy very early becomes edematous and the muscle fibres show a tendency to degenerate. I exhibit two sections under the microscope, one under low and the other under high power. There can be no doubt that they show hypertrophied muscle fibres, somewhat degenerated. It is very probable that these muscle fibres might have contracted, simulating uterine contractions.

DR. A. H. TAGERT (by invitation).—I saw the case about two weeks before Dr. Earle was called. The woman had a violent cystitis, which was caused by the husband passing a catheter to draw her urine. She had a temperature of 103° and the urine was full of pus. Her bladder was washed out twice a day for several days, when the temperature dropped to normal and remained so. October 10, labor pains set in. I knew it was very near the time she expected to be sick, so, a couple of days before the 10th, I made an examination—under chloroform, as she was exceedingly sensitive—and found the os high up above the pelvis in front. On and before the 14th fetal heart sounds could be heard; after the 14th I was unable to distinguish any fetal sound. On the 18th regular labor pains started up again the same as they did on October 10 when Dr. Earle was called. They were regular for two or three hours. I called Dr. Earle again, and we suspected a double uterus from the contractions, that were very pronounced, and, after examining the patient a little more carefully, we succeeded in carrying the finger into the uterus, but could find no entrance to either horn. We then suspected we had extrauterine pregnancy to deal with. She was

taken to the hospital and remained there for four days before operation. For two days after she was admitted to the hospital she was comfortable, with no elevation of temperature, and could take only a small amount of nourishment. The two days following she vomited, was very restless and uneasy, and took no nourishment whatever. Her condition seemed to be getting worse, and she was begging for relief, so I deemed it wise to operate, and intended to do so through the vagina. Dr. Ferguson reported a case that was successfully operated upon in that manner. Dr. Bacon and Dr. Holmboe were present at the time of the operation, and, after examining her carefully, thought it was best to go in through the abdominal cavity. This we did. The patient was in poor condition. We commenced with hypodermic injections of salt solution and kept it up most of the time during the operation. She came off the operating table in a rather poor condition; her temperature soon after the operation was 105° . I think she took nearly two quarts of normal salt solution while we were operating. Whether that had anything to do with the high temperature so soon after its use, we do not know. However, the temperature gradually came down to very nearly normal for about forty-eight hours, after which it rose a degree or two before death. For twenty-four hours before death she seemed to improve, although reaction was not complete. At this time she was exceedingly restless, and became weaker and weaker until she expired.

DR. JUNIUS C. HOAG.—I would like to ask whether the author has any figures with regard to the number of cases of extrauterine pregnancy that have been reported in which the patient went on to term, and whether he can cite any cases in which living children have been delivered in cases of extrauterine pregnancy.

A few years ago I was told of a woman who gave birth to a child in a town at a considerable distance from Vienna, after which she was sent to that city and another living child was removed, which had developed outside the uterus. These children were in good health at that time.

I happened to see casually in the hospital, six or eight months ago, a patient in whom a diagnosis was made of extrauterine pregnancy. She had long since passed the period of complete gestation; she was exceedingly emaciated and looked like one in the last stages of septic fever. The peritoneum looked as if it were putrid. Still, the patient made a good recovery.

DR. J. T. PICKELL.—I believe the statement was made that there were no severe symptoms of shock in this case due to rupture. I would like to ask whether during the operation there were found signs of a previous hemorrhage due to rupture. It is a question whether the severe symptoms of shock and collapse in ruptured extrauterine pregnancy and in similar cases can only be explained by a hemorrhage into the peritoneal cavity, and whether there is always a relation between the amount of hemorrhage and the degree of shock.

DR. J. CLARENCE WEBSTER.—These are undoubtedly the largest muscle fibres I have ever seen in an ectopic-sac wall. There is no doubt that in early tubal pregnancy hypertrophy and hyperplasia of muscle fibres occur, but with great variations. As the tube increases the muscle bundles get broken up, torn apart, and become atrophied and often somewhat degenerated. We have the best evidence of well-marked hypertrophy and hyperplasia of muscle in the rare cases of tubal pregnancy which advance beyond the mid-term of gestation without rupture. In Dr. Earle's case it is difficult to say that the specimen was from the wall of the sac or a portion of the tube wall. I am sorry Dr. Earle has not given us more details with regard to the nature of the gestation. Can he entirely eliminate interstitial pregnancy? From his report he certainly cannot do so. Of course some cases of interstitial pregnancy may simulate a tubal pregnancy, and in it we may expect to find marked hypertrophy of the muscle fibres similar to that found in a normal uterus. There can be little doubt that the pains felt during the progress of a tubal pregnancy are, in some cases, due to contractions of the musculature. I do not believe, however, that it is a very frequent occurrence, because the muscle, as a rule, is so poorly developed. I think it is extremely bad practice to remove the placenta at the time of the primary operation, even though the child has been dead the number of days reported in this case, for these reasons: If thrombosis has not occurred in the maternal sinuses which supply the intervillous spaces, there is great danger of early death from hemorrhage. Furthermore, if there be any suspicion of infection in the case, we know that after the death of the fetus, especially in advanced cases where the ectopic sac is in relation with the bowel, especially behind the peritoneum, there is advance of micro-organisms into the sac from the bowel, and to remove the placenta, opening up a lot of fresh raw tissue, would be to increase the risk of septic infection. The plan that is followed by those who have had the most experience is to remove the fetus at the first operation, pack the cavity with gauze, and to remove the placenta a number of days later.

DR. BACON.—I would like to ask Dr. Webster, in view of his position in regard to removing the placenta, how he would consider the operation that Dr. Tagert had proposed, namely, removing the fetus by the vagina and dealing with the placenta by the same route.

DR. WEBSTER.—I think that is an admirable procedure in early cases. It might be in advanced cases, if there was proof that the placenta was low down, but there is great risk in the method. I was called in consultation to see a case of pregnancy which had been treated in this way. The fetus was removed through the posterior fornix, but the physician was not able to remove the placenta entirely. Infection took place and the woman died of sepsis. If the placenta were high it would necessitate another incision in the abdomen later on, and that would be risky on

account of the danger of infection, especially if the lower incision did not remain perfectly aseptic.

DR. CARL WAGNER.—I would like to say a few words in regard to the point touched upon by Dr. Webster, namely, the manner of dealing with the placenta. Last Monday I operated on a seven-months extrauterine pregnancy which I had diagnosed and arranged for operation six months ago. The patient, however, drifted into the hands of others and was put under expectant treatment, with the result that I had to operate upon her last Monday quite suddenly on account of her dangerous condition. The almost pulseless patient, with a temperature of 102°, was completely exsanguinated. The blood had escaped undoubtedly for a long while into a pouch of protective adhesions which had reached a point about two inches above the umbilicus and contained very old indurated blood coagula. In this case, and in all cases where I expect a great deal of hemorrhage or meet with such, I have two Mikulicz drains ready; one already packed with the strips of iodoform gauze, to be placed directly against the former seat of the placenta—I say already packed, because the packing of gauze strips into the Mikulicz drain after it is inserted against the seat of the placenta is apt to produce great friction and prone to increase hemorrhage, while simply placing the filled Mikulicz pouch gently but firmly against the seat of the placenta, previously well compressed with hot sponges for a short time, very satisfactorily controls the hemorrhage. In extraordinarily obstinate sanguineous cases I found great aid by sprinkling some Monsel's powder over the outside of the Mikulicz drainage before inserting it. After the first Mikulicz drainage is well applied, and is held in place by gentle but firm pressure, the Mikulicz packing is applied to the rest of the oozing field in the ordinary way. This method proved very satisfactory in the above-mentioned case, as the patient has had not the slightest secondary hemorrhage and is in very good condition.

DR. MAXIMILIAN HERZOG.—I was not in a position to decide positively whether these muscle fibres were from the tube, because the possibility of a horn pregnancy had to be considered, and I asked the operators the question as to the possibility of a horn pregnancy. This was denied. It is probable that the muscle fibres are from the tube.

DR. RUDOLPH W. HOLMES.—Dr. Earle tells me that the round ligament seemed to run almost transversely in front of the large tumor, so that would seem to preclude a cornual or interstitial pregnancy.

If permitted, I will answer the question raised by Dr. Hoag, although Dr. Earle can do so as well. Almost every year half a dozen cases of extrauterine pregnancy are reported as happening at term, and occasionally one where the child is delivered alive. I recall one instance, four or five years ago, of twins where one was delivered alive.

DR. A. H. TAGERT.—I intended to leave the placenta, but a

small rupture into one of the veins continued to bleed after packing, and when clamped with forceps the hemorrhage became worse, so two large clamps were put on in V-shape, and still there was hemorrhage. We could remove the placenta more quickly than we could deal successfully with the hemorrhage in any other way. Not more than an ounce or two of blood was lost during its removal, and it was quickly done, notwithstanding a portion of the sigmoid and descending colon had to be dissected off. I would recommend removal of the placenta in a case that is in fair condition to endure a major operation.

DR. FRANK B. EARLE.—In answer to Dr. Hoag's first question in reference to the number of cases of extrauterine pregnancy going to term, I will say that is a point upon which I am not prepared to speak. His second question has been answered by Dr. Holmes.

In relation to the signs of rupture, I do not know that they were even looked for at the operation; and in regard to the point raised by Dr. Webster, the uterus was clearly outlined and could be moved easily without moving the tumor at all, there being a marked line between the uterus and the tumor.

DR. J. CLARENCE WEBSTER.—To refer again to the question of hypertrophy of the muscle fibres, I had not carefully examined the microscopic sections when I first spoke. I suppose we are here to get at facts. I hold that these are not specimens of the tube wall, and I think it can be demonstrated that these sections represent portions of the round or utero-ovarian ligament. There are two or three bits of a muscular band, one cut transversely, the others obliquely, greatly resembling these ligaments, situated in the midst of the ordinary structure of the stretched and thinned tubal wall. I do not think it is right to publish this as a hypertrophy of the tube wall until we have further demonstration and proof. I believe Dr. Earle and Dr. Herzog should make a more elaborate study of different portions of the wall. The study of ectopic gestation in the past has been too frequently marked by the publication of statements which have not been supported by facts, and the old classifications have been shown repeatedly to be faulty because of insufficient examinations made at operations or at ordinary autopsies.

DR. CHARLES S. BACON.—There is evidently some misunderstanding as regards the possibility of the specimens being from the round ligament. I was present at the operation, and I can state positively that the round ligament was plainly distinguished and entirely separate from the tumor. It was absolutely distinct from it, so that there can be no possibility of its having formed a part of the sac.

DR. FRANK B. EARLE.—I did not presume to make a distinction, but relied solely and absolutely on Dr. Herzog. I shall be very glad indeed to have the matter probed to the bottom. If there has been an error, I am sure you will all admit that it was

an innocent one, and we shall make every attempt to have it corrected.

DR. WEBSTER.—In ectopic pregnancy one of the things that happen to the round ligament is its incorporation into the wall of the sac in cases which develop in the broad ligament, and the ligament becomes flattened out, and it is easy for the most expert histologist to describe that as a section of the wall.

HYDATIDIFORM MOLE, WITH A REPORT OF TWO CASES AND CLINICAL DEDUCTIONS FROM TWO HUNDRED AND TEN REPORTED CASES.

DR. PALMER FINDLEY read a paper on this subject, of which the following is a summary:

1. Nothing definite is known of the immediate and remote causes of hydatidiform mole. It most frequently occurs between the ages of 20 and 30, and is two and one-half times as frequent in multiparæ as in primiparæ. No general or local disease is positively known to have a direct bearing upon the development of the mole.

2. The weight of evidence is in favor of a maternal origin, the vesicular degeneration of the chorionic villi resulting from a disturbed maternal circulation. Failure on the part of the maternal circulation causes a degeneration of the connective-tissue stroma of the villi, together with serous infiltration or edema. The syncytium and Langhans cells penetrate deeper into the decidua where the nutrition is adequate—a fact which accounts for the unusual proliferation of these epithelial elements in hydatidiform mole.

3. There is no proof that cystic degeneration of the ovaries has any influence upon the development of cystic degeneration of the ovum; the former is so common, as compared to the latter, it is not likely that they stand in relation of cause and effect.

4. Malignant degeneration of hydatidiform mole occurs in about sixteen per cent of all cases. No sharp line can be drawn between benign and malignant hydatidiform mole. Syncytial invasion of the connective-tissue stroma of the villi and of the uterine musculature occurs under normal conditions, and cannot be regarded, in hydatidiform mole, as evidence of malignancy, unless found to a marked degree.

5. Contrary to the usual statement that there is a tendency to the development of two or more hydatidiform moles, it is found to be the great exception.

6. It follows that a macroscopic and microscopic examination of discharged vesicles will not determine the benign or malignant character of a mole.

7. The length of time a mole remains *in utero* does not influence its disposition to become malignant; those expelled in the early months are as likely to become malignant as those of late development.

8. The diagnosis of hydatidiform mole cannot be made with certainty without seeing the vesicles. These vesicles are seldom

expelled spontaneously before the abortion is in progress (four times in 210 cases); hence it is that the diagnosis is rarely established until the expulsion of the mole, either spontaneous or induced.

9. The most constant clinical evidence of the presence of a mole is the rapid development of the uterus. Uterine hemorrhage is an early and almost constant symptom. The irregular shape and consistence of the uterus are important diagnostic factors.

10. In view of the tendency of hydatidiform mole to undergo malignant degeneration, the only safeguard lies in early recognition and immediate removal, however limited the degeneration may be.

11. Ergot and vaginal packs will control the hemorrhage and will often excite the uterus to contract and expel the mole. The curette should not be used for fear of perforating the greatly stretched and weakened walls.

12. After the mole is expelled, always explore the uterus with the finger, irrigate, and pack with antiseptic gauze.

13. Two weeks after the birth of the mole it is well to curette the uterus and examine the scrapings for syncytial invasion, and, if found in the act of proliferating, hysterectomy should be performed.

14. A period of about three years of watchful expectancy should follow the expulsion of a hydatidiform mole. In the event of uterine hemorrhage an exploratory curettage must be made for microscopic examination of the scrapings. All new growths in the vagina and lungs are to be regarded with suspicion.

15. The following is a summary of statistics derived from the accompanying reports of 210 cases: Average age of patient is 27 years; extreme ages are 13 and 58 years. Largest number of moles born of a single woman is 11; 8 of the 210 cases had cystic degeneration of the ovaries. One hydatidiform mole developed in the Fallopian tube. Malignant degeneration occurs from one week to four and one-half years after the expulsion of the mole, as evidenced by the recurrence of hemorrhage. Mortality from hydatidiform mole is 25 per cent. Causes of death: Syncytioma malignum, 16 per cent; hemorrhage, 4 per cent; septic peritonitis, 2 per cent; general sepsis, uremia, nephritis, endocarditis, meningitis, each .005 per cent; 2 of unknown causes.

DR. JOSEPH B. DE LEE.—My own experience with hydatidiform mole comprises six cases, of which the clinical picture of four is at present in my mind. The other two were mild cases and did not give much trouble. The principal symptoms in all of the cases were hemorrhage and rapid enlargement of the uterus. Rapid enlargement of the uterus was more marked in four than in the other two. The mole evidently died in three cases, so that it seemed as if Nature was trying to cure these moles in pregnancy, because in three of the cases the enlargement of the uterus ceased and the pregnancy apparently went

on without any further growth of the mole, and it was expelled spontaneously and completely without any after-effects, so far as I could see, and without any other treatment than expectancy. In one of these cases Dr. Holmes finished the delivery. The mole was about the size of a cocoanut; it came away completely and was organized. In this case the mole shrank, and evidently the woman had carried it for five months. All of the three other cases were attended with hemorrhage. In all of them the symptoms became progressively worse, and they all required interference.

The first case was a woman who had exophthalmic goitre; she bled several times without calling the attention of the physician to it. Finally she had a profuse hemorrhage, and a physician attempted to curette the uterus with the patient lying across the bed, but she made so much outcry that he had to desist. He sent for an anesthetizer, and in the meantime she lost so much blood that she nearly died. For forty-eight hours the woman's life hung in the balance. I arrived about four hours after the attempt at curettage was made and found the woman in a precarious condition. It was absolutely necessary to go ahead and empty the uterus, because she was bleeding profusely at the time. We gave salt solution and emptied the uterus of the mole, which filled about two quart Mason jars. The finger went almost through the uterus to the peritoneum; the mole had grown into the musculature, and with very little force one could have forced the finger into the peritoneal cavity. The uterus was tamponed: The woman rallied after forty-eight hours. She has since given birth to three children spontaneously at term.

Another case presented a similar history, but without so much hemorrhage. Labor was induced by means of bougies. She expelled part of the mole, bougies, and vaginal tampons, and the uterus was cleaned out and rubbed out with gauze, because it was found the vesicles had grown into the uterine wall. This woman had a febrile puerperium, but recovered.

I would merely emphasize the possibility of perforating the uterus, and the possibility of the mole being spontaneously arrested in its growth and expelled.

DR. J. CLARENCE WEBSTER.—Dr. Findley has given a very complete account of the histologic findings. Unfortunately he has not added anything to our knowledge of the causation of this condition. The histologic findings are exactly as he has described them. We have for many years been misled by Virchow's original description of myxomatous degeneration. There can be little doubt that there is not a myxomatous degeneration in the formation of hydatidiform mole. In Virchow's time, and until very recently, the nature of the superficial covering of the mole was not well known. It was thought to be entirely or partly uterine maternal tissue; but it has been established by the best workers in recent times that it is derived entirely from fetal epiblast and that it is the essential feature of the mole. Histologi-

cally it is a wonderful proliferation of the syncytium and of the Langhans layer.

Dr. Findley's sections show how marked is the development of the so-called Nitabuch fibrin layer in the superficial layer of the serotina, and any one who is familiar with the histology of the uterus and placenta will agree that this fibrin layer is more abundant than it is in a normal specimen at the same period of gestation. The fibrinous change in the superficial layer of the decidua is, in all probability, a transformation of the maternal cells of the decidual tissue. It is not derived from blood. It is probably of the nature of a coagulation necrosis, and in some way or other it may afford a barrier to the downward progress of the villi. We know that normally the villi do not burrow deeply into the maternal tissues; they are mostly attached to the surface, only a few being slightly embedded. Wherever they are attached there is a tendency for the development of the fibrinous change in the neighborhood. It is significant that, with this proliferative tendency on the part of the fetal ectoderm, we have a corresponding development of this fibrinous change in the superficial change of the decidua serotina.

In quoting Marchand, Dr. Findley was inclined to favor Marchand's view that the factor which helps to determine the formation of hydatidiform mole is degeneration of the maternal tissue. It seems to me the strongest argument against such a view is that which we find normally in the decidua reflexa. We find at a very early period that there is a normal degeneration of the reflexa, coagulation necrosis taking place rapidly throughout its tissue, and yet we do not find any special relationship between this change and hydatidiform degeneration in the villi attached to the reflexa. Indeed, the villi of the chorion leve do not show any tendency to myxomatous change or to any proliferation on the part of the fetal ectoderm. Such a view as Marchand's, therefore, cannot be held for one moment.

Hart speaks of the relationship of the thyroid to the variations that we find in the connective tissue of the body. We know that the thyroid develops at about the end of the twenty-first day in the fetus, and before that period we never find in the chorion anything but typical mucoid connective tissue; afterward we find a tendency to fibrillation in the chorionic villi, as well as in the chorionic membrane and umbilical cord. Interference with the function of the fetal thyroid may play an important part in preventing the normal tendency to fibrillation. In the latter months of pregnancy the villi show variations in fibrillation and in condensation, and the same thing is found in the umbilical cord.

The essayist mentioned Marchand's view regarding the function of altered syncytium in helping to induce some such change as is present in hydatidiform mole. Normally, as pregnancy advances the syncytium covering the villi changes somewhat in character, especially in the last months. It becomes broken and

split up in many places. This degeneration is usually associated with a tendency to fibrin formation in the neighboring maternal blood, but *not with any hydatidiform degeneration in the villi.*

DR. CARL WAGNER.—I saw a case some eight years ago which is interesting as having a bearing on the causation of these moles. The patient was a young woman who had, after an attack of influenza, developed an ulcer of the stomach, which existed for six years. She was greatly emaciated and had developed albuminuria. She married and became pregnant; she had edema of the legs and anasarca of the abdomen, and at about the eighth month she was delivered. The placenta filled a jar of about one-half a gallon.

The essayist did not differentiate between total and partial molar placenta, which is of great importance, as the late literature shows that partial degeneration of the placenta in this sense is by no means a rare occurrence.

In regard to the diagnosis previous to the delivery of the contents of the uterus in my case, it was impossible to state the exact condition. There were fetal heart sounds quite perceptible at the first examination, the seventh month after conception, which are, as a rule, absent in this pathological development of the placenta. In the second place, there was not the diagnostic point of doughy consistence of the organ, but quite a distinct feeling of a resistant body in a liquid medium. Furthermore, there was no rapid distension of the organ, neither had the patient suffered at any time during her pregnancy from pains anywhere in the abdomen. Last, but not least, there were never any hemorrhages or sanguino-mucous discharges. All the other symptoms of pregnancy were present: swelling of the feet, thighs, and external genitals, and this to quite an extent; also severe vomiting, dyspnea, and oppression. If we were to ask what could be held responsible for the development of this abnormal placenta, and taking into consideration the experiences and opinions of others, like Virchow, Schröder, Winckel, Borwin, Braxton-Hicks, etc., our attention must be directed to the state of health previous to her married life, at a time when her health was impaired on account of a protracted attack of influenza; a subsequent anemia of long duration, complicated by a round ulcer of the stomach, which aggravated the existing anemia. Of no small importance in the determination of the cause of the atypic development of the placenta is the fact of a co-existing albuminuria. Syphilis being excluded by anamnesis and examination, this case seems to be one of atypical development of the placenta caused by impairment of nutrition of the same through anemia and albuminuria. This patient was cured two weeks after delivery and has given birth to three healthy children since. She is now in perfect health.

Meeting of December 19, 1902.

The President, CHARLES S. BACON, M.D.; in the Chair.

SLIDES OF EXTRAUTERINE PREGNANCIES.

DR. MAXIMILIAN HERZOG.—About two weeks before the November meeting of this Society Drs. Earle and Bacon asked me to make a microscopical examination of a case which they said was one of tubal pregnancy at full term, and in which case they stated they had observed rhythmical contractions of the gestation sac. I was asked to make this examination, to find out, if possible, whether the sac contained any elements which might explain the contractions; in other words, whether it contained any unstriated muscular fibres. I cut several pieces out of the torn and partly decomposed sac and had sections made. In one piece of tissue I found what I considered muscle fibres. I asked the two operators, who had seen the case, whether there was any possibility that the pregnancy was not a true tubal but a horn pregnancy. This they denied. I then expressed myself, rather cautiously, that these hypertrophied muscle fibres were derived from the tube wall. After I had left the meeting Dr. J. C. Webster saw fit to criticise the opinion which I had expressed. I will now reply to the remarks of Dr. Webster.

It is a well-known fact that, as a rule, the muscularis in tubal pregnancy does not undergo any very extensive hypertrophy. It undergoes some hypertrophy, but then the wall soon becomes edematous. The bundles of muscle fibres often show considerable diastasis, or separation, with nothing between them but a watery fluid. We find in other cases an inflammatory cellular exudate. It happens, however, occasionally that there is considerable hypertrophy, and this is not a process so very anomalous that it should create a great surprise. I have here a number of sections showing such a hypertrophy of the muscularis.

No. 1 shows the condition we generally find. It is a case which fell into my hands quite recently. The patient was operated upon by Dr. Swenson at the Passavant Hospital. I was present at the operation. It is the very last specimen of tubal pregnancy I examined, hence I brought it here to-night. It shows a considerable diastasis of the muscle fibres. This case (section No. 2) presents another very interesting feature, though this point has no direct bearing on my remarks concerning muscular hypertrophy. The non-pregnant tube was removed as well as the pregnant one, and the former, though not having contained a developing ovum, shows slight decidual changes. I have once before seen this occurrence in a case of ectopic gestation with removal of the other non-pregnant tube. I believe Dr. Webster first reported an observation of this kind.

Slide No. 3 is the same specimen I exhibited at the November meeting. This section I then said shows hypertrophied muscle fibres, coming, very probably, from the tube wall.

The next section, No. 4, is from one of Dr. Henrotin's cases.

It is an early case, having progressed to about four to six weeks' gestation, when rupture occurred and the operation was performed. This section shows an enormous hypertrophy, and we have here a section through the tube wall, near the site where the rupture occurred, and there cannot be the least doubt as to where these hypertrophied muscle fibres came from. There is not the least doubt as to the proper interpretation. We have here an enormous hypertrophy of the muscularis tubæ.

Slide No. 5 is from another case of Dr. Henrotin, which also shows in the tube wall bundles of muscle fibres, more or less hypertrophied, not as extensive as in slide No. 4; however, there is no edema. We have solid undamaged muscular tissue.

Slide No. 6 is from another early case of extrauterine pregnancy, showing likewise muscular hypertrophy.

After I had learned what remarks had been made by Dr. Webster, I made a number of additional sections of the placenta of Dr. Earle's case, and I happened to find one place which appeared to be the thickest part of the whole gestation sac proper (leaving out of consideration that part to which is attached the placenta fetal). You will notice by looking at the sections with the naked eye that there is a split in the tissue. The outermost portion of the tissue proves to be the flattened ovary. The ovarian stroma is typical; so is a corpus albicans which is also present. The inner portion of the tissue contains bundles of hypertrophied muscle fibres. This tissue found in the sac, right next to the ovary, might perhaps be the utero-ovarian ligament. I do not believe that this part of the sac really represents the utero-ovarian ligament, but it would be reasonable to assume that if any part of the sac represents the utero-ovarian ligament we would find it here in the neighborhood of the ovary. If you will look at the muscle fibres in this section you will see that they are hypertrophied; that the arrangement is different from that shown in the section which I exhibited at the November meeting. So if this (slide No. 6) is the utero-ovarian ligament, then the other section (No. 3) cannot be; and if the other one is the utero-ovarian ligament, then the section which is new to-night cannot be it.

Slide No. 7 shows considerable hypertrophy of muscle fibres. The tissue comes from another part of the sac. These three pieces from different parts of the sac, showing hypertrophy of muscle fibres, cannot, of course, be the utero-ovarian ligament.

While I examined these slides a question arose which is, I think, an interesting one. I asked myself: Where do all these hypertrophied muscle fibres come from? It has been ascertained that in uterine pregnancy each individual fibre of the uterus undergoes hypertrophy, but there is not a single new fibre formed. During involution, again, the fibres undergo partial fatty degeneration, but there is not a single fibre lost. Of course I am speaking of normal involution, without infection and inflammation. The tube wall contains comparatively few

fibres. From where then shall, in a full-term ectopic gestation with considerable hypertrophy, come all the fibres? It seems to me the sections answer this question. We find hypertrophied muscle fibres derived from the blood vessel walls. We can see in the sections shown here to-night how the hypertrophied muscle fibres take their origin from the muscularis of vessels, and how they grow out from this source into the surrounding tissue. I have attempted to study these points in detail by the use of the Weigert stain for elastic fibres, but the tissues are so degenerated that the results with this stain were not good. It appears that we have here in this full-term ectopic sac a new formation of muscle fibres such as we find in the truly neoplastic formation of a myoma. It seems that in tubal pregnancy there is an attempt on the part of the tissues to supply something from the vessel wall which cannot be supplied from the comparatively scanty muscularis proper of the tube wall.

I want to say, in conclusion, that, after studying extensively and carefully the sac in Dr. Earle's case of full-term ectopic gestation, I have no doubt that the sac contains a lot of hypertrophied muscle fibres, and there can be not the least doubt that all of these muscle fibres are not derived from the utero-ovarian ligament; indeed, I am really convinced that in not one of the sections exhibited are the muscle fibres derived from the utero-ovarian ligament.

DR. J. CLARENCE WEBSTER.—I trust Dr. Herzog will understand that I did not take advantage of his absence at the last meeting in order to make my remarks. You will remember that I first stated, from the description that was given, that Dr. Earle's case might have been either a cornual or an interstitial pregnancy; then afterward, when I examined the specimen, Dr. Herzog having left the room, I stated that the slides appeared to me to show a section of a small band of hypertrophied muscle fibres running in the midst of loose cellular tissue, etc. I stated that the band might be a section of the round ligament or of the utero-ovarian ligament. In view of the presence of large hypertrophied arteries, I thought it probable that it was the utero-ovarian ligament. I have not changed these opinions in the slightest degree. Dr. Herzog has brought other sections here to-night, and they also show oblique and transverse sections of the muscular band. One gentleman, in examining the slides at the previous meeting, pointed out hypertrophied muscle fibres, but I was able to convince him that he was showing me the wall of an artery cut obliquely. Dr. Herzog has stated to-night that evidently there is some relationship between the hypertrophied muscle fibres in the wall of the gestation sac and hypertrophy of vessel walls. With regard to the further specimens he shows to-night, they are of more interest. The band-like arrangement is not seen. There are a lot of muscle fibres in the same specimen which, he must admit, are not larger than those we would ordinarily find in tubal pregnancy. In referring to the band in

the specimen shown the other night, I was not speaking of the whole specimen removed, but I said it should be investigated a little more fully, as Dr. Herzog has done.

With regard to his contention as to the origin from vessel walls, I am not able to say anything. One is at once led to think of the view held by some authors as to the origin of myomata of the uterus from the musculature of vessels. I was the first to show that we occasionally find in ectopic pregnancy a proliferation of the endothelium of vessels in the decidua which may extend into the surrounding decidua, exactly like that change which has been shown by Hubrecht in the hedgehog, the proliferated endothelium being named by him *trophospongia*. It would be interesting if Dr. Herzog's speculation as regards the origin of muscle in the wall of an ectopic gestation sac from vessel walls can be sustained.

UTERINE TUMOR COMPLICATED BY A SIX-MONTHS PREGNANCY.

DR. RACHELLE S. YARROS.—The patient was 35 years old, had never been in good health, and was of a highly nervous temperament. There was nothing abnormal in her menstrual history. She had been married four years, her oldest child being 3 years of age. The first labor was a protracted one, but terminated naturally. According to her family physician she had a very severe postpartum hemorrhage. Fifteen months after that she gave birth to a still-born child. All through this second pregnancy she suffered from chorea and "fainting spells." This labor was long, but terminated naturally. Puerperium was without any special interest. After the birth of the second child she menstruated three times and then ceased. Soon after that her health began to fail. She lost her appetite, became very much constipated, and the chorea, which still persisted, became worse. Her tongue became partially paralyzed. She could not sleep or do any work. The patient's mother died very suddenly two weeks ago, and, probably as a result of the shock, she became insane. She was then brought to the city and I saw her for the first time. Her breasts were large, very little pigmentation around the areola, and abundant secretion of milk. The abdomen was enlarged unevenly. Two distinct tumors could be seen and easily outlined, both apparently meeting and fusing a little below the umbilicus. The tumor on the right side was as large as an eight-months pregnancy and very tender to touch. Some fluctuation could be obtained. The tumor on the left side extended three fingers above the umbilicus. No fetal heart sounds could be heard, no fetal movements could be felt, but the patient, during her lucid moments insisted that she was feeling the child. A loud uterine bruit was heard in front and just a little to the right of the umbilicus. There was no discoloration of the genitals. In making a vaginal examination the cervix could not be felt and the entire true pelvis was found filled with a hard mass. A large incision was made in the median line and

both tumors came plainly into view. The right large tumor was found to be a pregnant uterus, while the smaller abdominal and the pelvic ones were found to be apparently outgrowths of the posterior wall of the lower uterine segment. The uterine muscle was found so thin and stretched over the fetus that it was at first hard to believe that it was actually a uterine pregnancy, but that was soon decided when the ovaries and tubes were found. In separating the pregnant tumor from the rest while removing it, a small opening was made in the uterus, through which the fetus in its amniotic sac was seen. In this intact condition I took the fresh specimen to exhibit before the Chicago Medical Society. In course of three hours—that is, between the time of operation and the time of exhibition—the specimen had greatly changed. The uterus had pushed out the fetus in its sac and almost entirely detached the placenta. The fundus contracted to the same extent as it would have done in the abdomen after a normal delivery. This phenomenon interests me greatly and I should be very glad to have some one explain it. Dr. Dreyer, the Professor of Physiology at the College of Physicians and Surgeons, thinks that the contraction of the uterus in this case was due to the cutting off of the supply of oxygen; he says that all unstripped muscle fibres contract very rapidly under such conditions.

The entire tumor weighed twelve pounds, the uterus and fetus weighing seven. I regret that I am not yet able to give you the exact pathology of the tumor.

DR. J. CLARENCE WEBSTER.—I saw the specimen which Dr. Yarros has exhibited, when it was fresh. I cannot say anything about the nature of the tumor. The phenomenon of retraction to which she has referred is an interesting one, but quite well known. The pregnant uterus was opened during the operation, and after removal continued to perform one of its physiological functions, viz., retraction, and expelled its contents; it continued to retract, so that the placenta, which could not follow the retraction, became exposed and somewhat separated. I have observed this in a number of cases of Cesarean section. I have spoiled more than one Porro-Cesarean uterus by not bearing this in mind, by leaving the specimen unattended and finding that retraction continued, causing partial expulsion of the placenta through the incision. The last Cesarean section case of this kind I had I stitched up immediately after it was removed from the body, in order that the uterus might retract on the placenta, and not expel it through the opening which was made. Furthermore, in experimenting with the pregnant uteri of sheep I have frequently observed the expulsion post mortem of the contents, on making an opening in the uterus, keeping it in salt solution. The uterine activity is probably due to the ganglia connected with the organ.

DR. JOSEPH B. DE LEE.—I had a case of Cesarean section, performed post mortem during my service at the Mercy Hospital, in

which the uterus contracted as well after death as it would during life.

SARCOMA OF THE OVARY.

DR. THOMAS J. WATKINS.—This specimen is a round-cell sarcoma of the ovary. In size and contour it resembles a kidney. It was free of adhesions, and yet the blood vessels of the abdomen were involved, as indicated by the presence of ascites. There was no other disease present to account for the ascites. One would not expect metastases from such a growth. The vessels are apparently diseased and doubtless account for the presence of the ascites. In all probability the disease will continue. The specimen was removed from a woman, 50 years of age, who had the menopause four years ago.

The microscopical diagnosis was made by Robert Zeit, Professor of Pathology at the Northwestern University Medical School. Inspection of a section under the microscope here shows it to be a typical round-cell sarcoma. The specimen is shown because of the early appearance of ascites.

A CASE OF SYMPHYSEOTOMY.

DR. M. L. HARRIS.—I wish to report a case of symphyseotomy which I have recently had, and again direct your attention to the method of performing this operation which I called attention to first in my inaugural dissertation before this Society in 1894. The history of the case is briefly this:

Mrs. K., aged 35; normal menstrual history; general health good; married April 25, 1900. First confinement January 26, 1901; prolapsed cord; dead baby. Craniotomy was necessary in order to effect delivery. Her recovery was uneventful. She became pregnant for the second time in December, 1901. As the time for confinement approached she entered the Passavant Hospital, under the service of Dr. Hooper, to whom I am indebted for the history of the case and the privilege of reporting it. Examination made by Drs. Hooper and Holmes, October 4, 1902, showed abdomen firm, not pendulous. Position of fetus L. O., transverse; movements active. Measurements: Pelvis: spines, Hooper 27 centimetres, Holmes 26 centimetres; crests, Hooper 28.5 centimetres, Holmes 27.5 centimetres; bitrochanteric, 31 centimetres; Baudelocque, 16.8 centimetres; symphysis, narrow. Conjugata vera, true, 8 centimetres; false, 7.5 centimetres. Sacrum: Double promontory. Sacrum sharply curved. Pelvic type, generally contracted, rachitic. Perineum, laceration of first degree. Estimated weight of fetus, seven to eight pounds; biparietal, estimated at 8.5 centimetres; occipito-frontalis, estimated at 10.5 centimetres.

In view of her first labor with craniotomy, and considering the measurements of the pelvis, it was recognized at once that an operation would be necessary to effect delivery of a living child, and I was consulted concerning some operative procedure.

I thought it a proper case for symphyseotomy and advised that operation.

Labor began October 9, 1902, at 2 P.M. The pains were slow, and not much progress was made until 9 o'clock October 10, when they had become more frequent, recurring every fifteen minutes, and were moderately strong. At 2 P.M. the pains were stronger and the os was dilated to about the size of a silver dollar. About 4 o'clock I was called to perform symphyseotomy. Of course the patient was thoroughly prepared in anticipation of the operation, so everything was in the best possible condition. I did symphyseotomy, and after the symphysis was separated Dr. Hooper applied forceps and delivered the child.

My reason for presenting the case is to again direct your attention to the method of performing this operation. In the paper which I mentioned I laid particular stress on the necessity of separating from the arch of the pubis the subpubic ligament and the triangular ligament, or the deep layer of the deep perineal fascia. The operation is done by an open incision. An incision from four to five centimetres in length is made from the top of the symphysis downward, not extending to the clitoris nor to one side of it. With the finger posterior to the symphysis as a means of protection, with an ordinary scalpel the symphysis is divided from before backward. With a blunt bistoury, which I think perhaps is the most convenient instrument, under the guidance of the finger, the subpubic ligament and deep peritoneal fascia is separated from the arch down each side. As this fascia is separated from the pubic arch the symphysis is found to gradually separate. The symphysis was separated very easily, to the extent of about four centimetres. The object of dissecting the fascia from the arch is to prevent laceration of this fascia when the symphysis separates. If it is not dissected away from the arch, it is impossible for the symphysis to separate without lacerating the fascia. The danger of lacerating the fascia is not confined to the fascia itself, but to lacerating the erectile tissues, veins, urethra, etc., which pass through the fascia and surround this neighborhood.

In the paper which I have mentioned I took the position that the mortality following symphyseotomy was too great; it was greater than the severity of the operation warranted. If we look over the cases of death which have followed symphyseotomy, excluding those cases that have been operated on *in extremis*, we will find the deaths have been due to two factors, namely, hemorrhage and infection. Hemorrhage comes from the laceration of the erectile tissue and large vessels which are enlarged by the pregnancy. The danger of infection is greatly increased by the fact of the laceration of the erectile tissue. The danger of hemorrhage may be entirely obviated by the method which I have mentioned. I have now performed three symphyseotomies by this method, and I may say that in none of the cases was more than an ounce or two of blood lost. In the last case the only

blood lost was that from the incision through the skin down to the symphysis, which was not more than an ounce or two. If we prevent laceration of the erectile tissue and the opening up of veins, the danger of sepsis will be very much diminished; therefore, by avoiding hemorrhage, opening up veins and sepsis, there need not be any mortality from symphyseotomy when performed in cases which we can prepare thoroughly. I do not refer to cases that are already septic, because any operation on them is dangerous.

The after-treatment is simple. After the wound is made it is carefully packed and covered with gauze. After delivery, whether by forceps or otherwise, the symphysis is pressed together. I surround the pelvis with a broad adhesive strip carried clear around, so as to compress the symphysis closer together, with two sand-bags to support the hip back of the trochanter. That is all there is to it.

This patient had no trouble whatever following the operation. The temperature was 100° on the second day after the operation, when her pulse increased from 84 to 96, but the following day it came down to 74. She was up at the end of the third week, left the hospital the fourth week with a perfectly formed pelvis. She has felt perfectly well since. Externally there is no motion whatever to be detected at the symphysis. With the finger in the vagina a slight motion about one-half centimetre may be felt on balancing from one leg to the other.

I am aware that it seems to be the rule now among obstetricians to decry symphyseotomy; still I am convinced it has a proper place in obstetrics, and, if properly performed, the mortality should be almost *nil*.

DR. HENRY F. LEWIS.—I would ask Dr. Harris the method on which he based the estimation of the size of the fetus. Would he have performed symphyseotomy if the head was impacted?

DR. JOSEPH B. DE LEE.—I think Dr. Harris is correct in saying that symphyseotomy is being discontinued by obstetricians. The operation is fast going back to the place that it occupied years ago, a place which I think it justly deserves. The operation has a limited usefulness in obstetrics. In one case of Dr. Harris' a Cesarean section would have been simpler and would have obviated certain dangers which Dr. Harris did not emphasize, and dangers which have influenced obstetricians to forsake symphyseotomy. I have done only two symphyseotomies; both mothers and both children were saved, and the four are alive at present; both women have since borne children—so that I ought to have a favorable opinion of the operation. The contrary, however, is the fact. It is an operation I practise only in exceptional cases.

The dangers of the operation are hemorrhage and sepsis. The difficulty of locomotion is not so common as was feared and as it was formerly. The danger of hemorrhage can be avoided. In the first case on which I operated I was assisted by Dr. Watkins. I performed the Harris method of separation of the ligamentum

arcuatum from the under surface of the symphysis pubis. A few others have practised it. The separation of this ligament produced such a profuse hemorrhage from the immensely enlarged varicose veins in the neighborhood that I had to stop it and cut through the joint as fast as possible and pack. The hemorrhage kept up after the delivery, so that we had to tampon outside and inside and exert counterpressure in order to arrest it.

In the other case of symphyseotomy I did not resort to the Harris method, and got along just about as well, as far as hemorrhage was concerned. But the anterior wall of the vagina was torn through, and this tear extended up into the symphysis wound in spite of an extremely careful delivery, so that when I got through there was a wound extending from the skin down to the cavity of Retzius, alongside the urethra into the vagina, and a certain distance up alongside the anterior columna. The base of the bladder was exposed; there was a laceration of the pelvic floor down to the sphincter, but not through it, in spite of the deep episiotomy. The case was one of funnel pelvis in which the head was impacted. In answer to Dr. Lewis' question I will say that the head was impacted deeply, the caput being visible; forceps was tried several times, and the symphyseotomy was done as a child-saving operation.

The other danger which Dr. Harris minimized, and one which has carried great weight with careful, aseptic obstetricians, is that of sepsis. A joint is a serious thing to be infected. I believe that surgeons fear infection of a joint as much as, if not more than, they do any other serous cavity. At least, this was taught years ago. The joint of the pubis is near an infected focus; it is near the vagina, which is infected after labor, whether the woman has a temperature or not. It is a passage that is open to the exterior; decomposition is going on, there is more or less infection, and a joint that is in close proximity to it is likely to be infected. We know this from the frequency of supuration in rupture of the symphysis without any communication with the vagina. Such cases have been infected and have terminated fatally. We know of cases of sacro-iliac infection in cases where the pubis has ruptured, because of the close proximity of the infected vagina, the infection travelling along the lymphatics, reaching the *locus minoris resistentiæ* in the joint. So from these points of view the operation of symphyseotomy is looked upon as unfavorable in the minds and practice of obstetricians.

Regarding the indication for the operation in cases where the pelvis is of the degree of contraction that Dr. Harris' case was, namely, seven and a half to eight and a half centimetres, the relative indication for Cesarean section comes into play, and I think that symphyseotomy would naturally stand next in an uncomplicated case.

If there is any doubt about the asepsis of the patient, or if

operations had been attempted, then section of the pubis should be considered.

DR. J. C. HOAG.—What was the subsequent history of these cases?

DR. DE LEE.—In the one where the head of the child was impacted and visible—the funnel-pelvic case—the woman became pregnant three years later, had a normal labor, the child being one pound and a half lighter than the first one. The joint was a little movable, although there was no difficulty in walking, but during pregnancy she began to waddle a little. She refused to let me examine her pelvis again. The symphysis, enlarged by the operation, gave a little by softening of the tissues during labor, and in addition to that she had a small child. The other woman has been delivered once since, that is, the second time, by version and extraction of the child, the child being two pounds smaller. The baby removed by means of symphyseotomy weighed nine pounds, while the second one weighed seven pounds. It was a shoulder presentation; the baby was delivered by a moderately hard extraction, and lived.

DR. A. GOLDSPOHN.—I rise chiefly to ascertain the experience of the gentlemen who favor Cesarean section, to ask whether they have any difficulty with inertia of the uterus in debilitated, worn-out subjects. I did a symphyseotomy only once and in an exhausted woman. I would be afraid to do a Cesarean section in such a case. A Porro operation, I think, would be better, as long as the child lived. But I would prefer to do symphyseotomy in a case like that, especially as this case terminated successfully for both mother and child. Dr. De Lee did not specify the indications for symphyseotomy. Let us take such a case as mine, for example: A woman who has been in labor for over three times twenty-four hours, who had, at various times, attempts made to induce premature labor for weeks unsuccessfully, who had been anesthetized five times, and forceps applied three times, and strong men having tired themselves out with the use of unjustifiable force, with a temperature of 102°, a pulse of 150, and the lower part of the body disfigured by edema when I got at her. After the operation was over it became necessary to keep the uterus bimanually under control to prevent her from bleeding to death from inertia of the uterus. In a case of that kind I would be afraid to do a Cesarean section if I knew I could do something less severe. It is the inertia of the uterus that I had to deal with in this case that I am querying about, as to whether it would probably have been dealt with as successfully in a Cesarean section in view of the exposure and suturing additionally required. I probably consumed more than an hour, with one hand on the abdomen and the other in the vagina, manually compressing the uterus, as all the things that are commonly known and used to stimulate contraction of the uterus were utterly without effect until I made use of a galvanic battery, applied one electrode within the uterus and interrupted the current,

producing a powerful effect that brought the organ to time. If any one has performed Cesarean section on so exhausted a patient, I would like to know whether this matter of uterine inertia has given him trouble. The woman recovered. There was some hemorrhage. She had elevation of temperature, but left the hospital in about four weeks, and walked fully as well as she did before. The child lived three hours, then died. At the autopsy it was discovered that the longitudinal sinus had been ruptured by the blade of a forceps. That I did not do, because I did not use forceps.

DR. RUDOLPH W. HOLMES.—From the frequent reports of cases of Cesarean section, especially in American literature, where the woman has been in labor for twenty-four, forty-eight, or seventy-two hours, where forceps have been tried, and where the operator reports success to both mother and child, to my mind it seems that it is more the good fortune of the operator than anything else that he saved one or the other or both. I do not think American obstetricians appreciate the necessity of having a perfectly clean case as much as do European obstetricians. In the European clinics Schauta, Leopold, Zweifel, and others will not do a relative Cesarean section if any one outside of the clinic has made a vaginal examination, for the reason that they claim the woman is essentially septic. She must go into the hospital during pregnancy, must be examined, the indications placed, and must not again be interfered with through the vagina, and then, when labor begins, or just before the estimated time for labor, Cesarean section is done. Those men have very favorable results. Cesarean section, in my mind, ought never to be performed if any attempt has been made to deliver the child through the vagina. It is a distinctly retrogressive step for Dr. Reynolds, in his paper before the American Gynecological Society, to advocate waiting for the woman to go into labor, even applying forceps tentatively, then do a Cesarean section. In such a case as the one reported by Dr. Harris, Reynolds would probably do a Cesarean section. But in those cases where both the baby and mother are in good condition, in the second stage of labor, one should do, more properly, a symphyseotomy. I saw the case upon which Dr. Harris operated some days before she was in labor, with Dr. Hooper. I was convinced that Cesarean section was indicated. Of course in some clinics it is still held the proper thing to do, symphyseotomy, but I feel as an elective operation a Cesarean section should have been done, according to the relative indications, rather than symphyseotomy.

There was one point in connection with symphyseotomy that was not mentioned. We must not take the statistics from clinics where a certain series of symphyseotomy operations are being done, as, for instance, in Morisani's or Pinard's clinic, and compare them with those Cesarean sections done by Olshausen and Schauta, etc., to get an unbiassed idea as to the mortality (relative) of these two operations.

The mortality of symphyseotomy, as computed by the best clinicians and from the work of general operators, is about the same as that of Cesarean section, but undoubtedly is placed too low: the mortality for the baby in symphyseotomy, however, is estimated to be about three times that of Cesarean section. The collective mortality (fetal and maternal) being greater in the former than the latter, no inducement for an elective symphyseotomy can at present be advanced. I feel that symphyseotomy is not going to have a real place in obstetrics again until cephalometry is more definitely determined, also pelvimetry. There is still too great a liability of error in estimating the size of the fetal head and the dimensions of the maternal pelvis, so it has been recorded too frequently that obstetricians have done symphyseotomies, have put on forceps to deliver, and found that sufficient room was not gained to allow descent of the head, and in desperation they have done craniotomy. Craniotomy should never follow symphyseotomy: that it does sometimes force itself on the attendant is proof of our inability to always accurately estimate the relative sizes of passenger and passage.

DR. H. BANGA.—Dr. De Lee's criticisms of symphyseotomy appear well founded. In fact, they are very ably set forth by Dr. Gigli, of Florence, in an article which you will find in the last number of the *Zentralblatt für Gynäkologie*. There Gigli advises to avoid the symphysis and instead to sever the pelvic ring by cutting the os pubis laterally to the tuberculum by means of his wire saw. He reports a number of cases successfully operated according to his method.

DR. HARRIS (closing the discussion).—In answer to Dr. Lewis' question with reference to estimating the size of the fetus, I do not know how the measurements were made. The measurements were taken by Dr. Holmes and Dr. Hooper, and I do not know how they made them.

In regard to the remarks of Dr. De Lee, there is one argument in favor of symphyseotomy which I did not mention, but which he did, namely, the frequency with which living children are born naturally after the symphysis has once been divided. In the first case I operated on the woman has borne two or three living children since. The symphysis, as the time for confinement approached, became slightly movable. The symphysis will separate somewhat in these cases and tighten up again afterward. She is the wife of a blacksmith, works hard, and has not had a particle of trouble from the symphysis since the operation. That, in my opinion, is one point in favor of symphyseotomy. When it is a question of Cesarean section or symphyseotomy, other things being equal, that point should decide in favor of symphyseotomy. After symphyseotomy there is a good chance for the second child to be born without operation.

Dr. De Lee has told us that he followed the Harris method in one case and had profuse hemorrhage. If Dr. De Lee had kept close to the bone in separating the fascia from the pubic arch

he could not have had hemorrhage. There is nothing to open. If he used a sharp knife, got away from the bone and got into erectile tissue, then he would have hemorrhage. There is very little blood lost if the operator hugs carefully the bone.

Dr. De Lee brought up the question of opening a joint, with the possibility of infection, as an argument against symphyseotomy. I read the article by Gigli in the last number of the *Zentralblatt für Gynäkologie*, referred to by Dr. Banga, and that was the chief argument of the author in favor of pubiotomy over symphyseotomy. It is plain to be seen that he is simply trying to devise some means to use his saw, and there is not a single sound argument in Gigli's article against opening the symphysis. The symphysis is not a joint like the knee or ankle. Why are we afraid to open a joint? Because the irregularities of the synovial cavity make it impossible to thoroughly drain it.

An infected joint we cannot drain is dangerous. Every general surgeon knows that he is afraid of joints that he cannot drain, but where he can drain them thoroughly the danger is very little. The symphysis is not a joint like the knee with a large synovial surface, but a synchondrosis. The danger from infection in opening the cancellated tissue of bone, such as is done in pubiotomy, is infinitely greater than in opening the symphysis. Any general surgeon knows that opening a considerable area of cancellated tissue in bone is more dangerous than opening up the connective tissue of a joint such as the symphysis. In opening a bone with the saw we are more liable to carry infection from the surface down into the bone than in opening the symphysis with a knife. So I think no good argument has been presented against symphyseotomy in properly selected cases, when properly done. I admit that the cases must be selected. The measurements of the pelvis of the patient must be known as nearly as possible, as well as the approximate size of the fetal head.

I have heard a great many say that Cesarean section is as simple an operation as symphyseotomy. I have had considerable experience in surgery of all kinds, both general and abdominal, and I must say that symphyseotomy is infinitely simpler than Cesarean section. I cannot see how they can be compared as regards simplicity. Symphyseotomy, when properly done, is a simple operation, without any hemorrhage to speak of, with very little danger of infection from the wound, and should have little or no mortality.

DR. JOSEPH B. DE LEE read a paper on

RUPTURE OF THE UTERUS DURING LABOR.¹

DR. PALMER FINDLEY.—The case was brought to the Presbyterian Hospital, in the service of Dr. Webster, he being absent from the city at the time. About three weeks after delivery by

¹See original article, p. 289.

Dr. De Lee, at the time of admission, she had a temperature of 104.5° ; pulse 160, very irregular and feeble. The patient presented the general appearance of one suffering from profound sepsis. The heart and lungs appeared normal; the abdomen was considerably distended; there was felt a rounded mass on both sides of the uterus, extending almost to the umbilicus. This mass was tender on pressure on the left side and rather firm; there was a depression in the centre which led down to the uterus. The vulva was very much swollen, edematous and tender, with sloughing tissue noticeable in the vulva. The urine escaped from the vagina, not from the urethra. Patient had involuntary discharges from the rectum. She was suffering from no great pain, except when palpating with the finger. She was profoundly depressed. It did not occur to me that the case was one for surgical intervention, but one rather for tentative treatment. She was given salt solution per rectum and strychnia hypodermatically, and she drank an abundance of water and whiskey. For three or four days there was practically no improvement, but we did not see any added depression. Then gradually she began to improve, and it was very interesting to watch the slow absorption of the tumor during the following few months. At first I thought it was a blood clot or hematoma of the broad ligament that was undoubtedly infected, because of the nature of the wound below, but it absorbed slowly. The temperature and pulse rate declined, but occasionally there would be a sudden rise of temperature. The patient left the hospital, at which time she was able to walk about and the exudate was scarcely palpable through the abdominal wall. I saw her about two months later, that would be five months after delivery, and to my surprise there was but very little exudate to be felt on bimanual examination. The fistula, which was quite large at one time, had altogether healed. She was urinating naturally; she menstruated normally, without pain; had gained in flesh, and seemed to be in perfect health save that she was constipated. The case is of great interest on account of the enormous hematoma which had gradually absorbed, and also on account of the healing of this large fistula.

DR. J. CLARENCE WEBSTER.—I have seen a number of cases of rupture of the uterus; almost all of them have been in the hands of midwives. I have never seen a case in which there was extensive rupture into the peritoneal cavity, associated with complete or partial entrance of the fetus into the cavity, saved by abdominal section. Death was due to loss of blood or sepsis. I reported such a case before this Society a couple of years ago.

Dr. De Lee has given us an admirable summary of the methods of treatment, and I think his views are sound. I have seen a few cases of rupture of the uterus in hospital practice. As far as I can remember at this time, all subperitoneal ruptures were treated by simple tamponade, followed by recovery. I think we must all feel as regards selecting any procedure that the prognosis must be a matter of much uncertainty, both on account of

the hemorrhage which has taken place, and the infecting organisms which may have been introduced by manipulation.

In reference to the last case which Dr. Findley has described, if I understood Dr. Findley rightly, he said that a large proportion of the bladder had sloughed away.

DR. FINDLEY.—A part of the anterior vaginal wall had sloughed away.

DR. WEBSTER.—There must have been a portion of the bladder wall, too, if a vesico-vaginal fistula developed. This large fistula was said to have been an inch in diameter, and is now reported to have closed. This is certainly an interesting observation.

DR. FRANK E. PIERCE.—It may be of interest to mention a case of rupture of the uterus which I saw in one of the foreign clinics, as bearing upon the remarks made by Dr. Webster. This was a case of rupture into the peritoneal cavity, the child having passed completely into that cavity. The rupture occurred when the patient was in the country. She was transported to the hospital; it took two or three hours to do so, and after admission the laparotomy was performed as soon as possible, and both child and placenta extracted. The uterus was removed by Porro's method. The case went along for some days, and no general peritonitis developed, but, after a high run of temperature and swelling on both sides, an opening was made in both inguinal regions, and a considerable amount of pus evacuated. This pus had evidently formed in the broad ligaments. The patient went on to recovery. These cases rarely recover, but this one did.

DR. DE LEE (closing the discussion).—I have very little to add, except to say that the impression might be carried away that complete rupture of the uterus is necessarily fatal; but Dr. Pierce's case shows that these cases are not necessarily fatal, although the majority of them do terminate that way. Cases are reported which have gone on to recovery from complete ruptures of the uterus, with the expulsion of the child into the peritoneal cavity. The cases reported by myself and referred to by several others show that a woman in labor can sometimes stand awful injuries. It is surprising, in the course of a year's practice, to notice how much women can stand and recover and feel well afterward.

The point Dr. Findley made with reference to large tumors alongside the uterus and calling them hematomata interests me. I am disinclined to believe they were hematomata. If they were, they must have formed after I got through with the patient, as I emptied the clots out. They were more likely inflammatory exudates, and that exudates of that size should be absorbed is not by any means unheard of. A suppurating hematoma is more rarely absorbed than an inflammatory exudate. I have seen an inflammatory exudate as large as a man's head become absorbed in the course of months of fever. The rises of temperature which this woman had during the absorption of the inflammatory exudate should be explained on the ground of new

accessions to the exudate. She may have jumped around in bed, or may have been carelessly lifted on to a bed-pan, which would be sufficient cause to start up the inflammation again and give rise to elevation of temperature. That is a common observation in cases of parametritis.

RUDOLPH W. HOLMES, M.D.,
Editor of the Society.

TRANSACTIONS OF THE CINCINNATI OBSTETRICAL SOCIETY.

Meeting of December 15, 1902.

DR. CARPENTER *in the Chair.*

A CASE OF PLACENTA PREVIA CENTRALIS.

DR. ROBERT W. STEWART.—About six weeks ago I saw, at the request of Dr. I. D. Jones, Mrs. E., who had suffered from a severe uterine hemorrhage some two hours before. Dr. Jones' statement was: Patient was about eight months advanced in first pregnancy, which had been uncomplicated; family history good; urine normal; had not been hurt, had not fallen nor undergone any violent exertion; that the hemorrhage was due to placenta previa.

The patient was thin, but not emaciated, somewhat pale, with small bones and poorly developed muscular tissue; heart and lungs normal; heart action somewhat rapid, which I attributed to fear; uterus (fundus) reached to two-thirds of distance between umbilicus and ensiform cartilage; fetus in L. O. A. position; fetal heart sounds not heard; no apparent hemorrhage—the tampon which Dr. Jones had inserted was efficient.

Instruments, hands of operator, and external genitals of the patient were made as nearly aseptic as possible and the patient completely anesthetized with chloroform. The tampon was then removed and the vagina was thoroughly scrubbed and irrigated. There was no hemorrhage. Digital examination showed: cervix obliterated, os externum readily admits one finger; parts not edematous; placenta quite evident and apparently attached all around at what must have been the dilated margin of the os internum; the resistance which the placenta offered to the examining finger was equal in all directions. There could be no question of the diagnosis. The carrying of the finger around the circumference of the external os dilated this part so that two fingers could be readily inserted. Manual dilatation was then carried on with ease and rapidity. By a boring motion of the finger an effort was now made to perforate the placenta with the object of letting the amniotic fluid escape, and in the hope of being able to apply the forceps and thus bring the fetal head down. If this could be done the lower uterine segment

would be effectually plugged and the placenta pinned between fetal head and the pelvic walls of the mother. While this manipulation was being carried out, and before perforation was complete, the uterus contracted sharply and expelled the placenta into the operator's hand. The amniotic fluid was of course discharged, but the loss of blood was trifling. After removing the placenta from the vagina, the hand was introduced and podalic version performed without especial difficulty or delay. One foot was brought down so as to plug the lower uterine segment. The child was slowly delivered by traction. It was dead. One or two stitches were taken for a superficial tear at the perineum. The cervix was not damaged. Uterus contracted well. A lysol douche was given and the patient turned into the proper position in her bed. She appeared to be in good condition. Everything was finished by 9:30 P.M., or in about one hour after the beginning of the manipulations. She recovered quickly from the anesthetic and spoke to her relatives, but her pulse was weak and thready and her pallor very marked. Normal salt solutions were injected under the breasts and elsewhere, whiskey and hot milk were given by the mouth, and digitalin, nitroglycerin, and strychnine hypodermatically, but all to no purpose. Death at 10.30 P.M.

The uterus was well contracted and there was no fulness or bogginess in the pelvis, hence there could not have been any rupture of the organ. The pupils reacted to light before death and were of equal size; there was no paralysis, consequently no central embolism was present. Heart sounds were clear. There was no postpartum hemorrhage, nor was there severe laceration of the soft parts. A profuse hemorrhage had occurred before any one saw the patient, but the loss of blood during the delivery was not great—was not, indeed, more than any woman would have had in a normal labor. The time which was occupied in delivery was not long, nor was the difficulty greater than might be expected in any case of placenta previa. There can be but one conclusion: the woman died of shock superinduced by the hemorrhage. This conclusion forces two thoughts: Was interference justifiable at the time, and would it have been better to have applied the forceps than to have done a version?

Practically all authorities agree in advising prompt delivery of the woman in placenta previa, and some advocate such a course in the interests of both child and mother. All authorities agree also that there is constant danger of a return of the hemorrhage, especially with the central implantation of the placenta, and that the succeeding hemorrhages are almost certain to be greater in quantity and more disastrous in their effects.

There are two contraindications to active interference: one when the patient is very anemic, and the other when the os externum does not admit two fingers. In these last cases the rule is to tampon cervix and vagina as firmly as possible, wait for uterine pains or induce them, and restore as far as possible

the strength of the patient by food, stimulants, etc. It once be admitted that when the placenta reaches only margin of the os internum and the waters have come an efficient tampon, by putting the uterine tissues on the str crowding cervical wall against the child's presenting p control hemorrhage in a great many cases. Further, doubted that in cases in which the waters have not co and the pregnancy has not advanced too far, a tampon placed and from time to time removed and the wom carried to full term.

Still, while all this is admitted, there is no question totally different line of conduct should be followed v placenta lies over the internal os and is attached all an margin. To pack a strip of gauze into the cervical cana neath the placenta is no doubt a certain method of contractions, but it is just as certain to produce further tion of the placenta and renewed hemorrhage. In cer plantation of the placenta a tampon can, in the writer ment, be looked upon only as a temporary expedient to g for obtaining assistance, sterilization of instruments, e us look for a moment at the mechanical factors in previa centralis. The hollow uterine muscle, with i concave segment made shallower by the placenta, a waters in which is a freely movable fetus. Contraction muscle will force the fetus against the inferior segmen cavity, but what is to hold the fetus in that position so the waters remain? A fetal head impacted at the pel might give a point of resistance against which tampon make counterpressure, but impaction can hardly occu cases under discussion. Consequently tampons, when th mentioned factors are present, can only crowd cervic upon itself, while, at the same time, uterine contract incited and further hemorrhage brought about. If th have come away and the fetus becomes fixed in the uter tampons would serve just as they would in cases of la plantation, for there must have been a separation of the at its edge. If this reasoning be correct there can be course to follow, and that is rapid dilatation of the cer foration of the placenta, and delivery. The only questio can arise is whether or not the preceding loss of blo which called the attention of patient and physician to th tion—had so debilitated the woman as to render any acti ures unjustifiable.

That some women with centrally implanted placenta plunged by hemorrhage, suddenly and without warning state of fair health to one of disastrous depression o powers, cannot be questioned. My procedure then wo tend to precipitate a fatal result from shock, heart clo bolism. With these conditions to face, the obstetrician compelled to take the possible risk of a return of the

rather than the certain one which would result from the dangers mentioned.

The question as to whether forceps or version should have been employed in the delivery of the child is one which need not occupy our attention very long. In the particular case either method of delivery would have its advocates and each obstetrician would decide for himself which he would employ. To my own mind the version was preferable, because with hand in vagina or uterus an efficient plug was present to prevent bleeding before the child was brought down far enough to act in that capacity, and when the leg is brought into the cervix by podalic version the physician has at his command a tampon which dilates as it plugs. This gradual dilatation of the os externum, while at the same time the denuded surface of the uterine wall is subjected to pressure, is the greatest reason for version. Did then version add to the dangers in my patient's case? The answer to this question must always remain unsatisfactory, for when both mother and child die the operator is apt to think that any other mode of procedure but the one followed would have been better for the patient. In the case reported, I can only say that no violence was used, no undue haste was practised, no bad lacerations resulted, and that the patient lost but little blood during or following the manipulations.

DR. WILLIAM D. PORTER.—This interesting case is a striking illustration of the fact that a fatal result from placenta previa is sometimes inevitable, even with the best possible treatment. As I must confine myself to the etiology, it may be well to review briefly the processes incident to normal pregnancy and labor. The placenta, as we know, is usually implanted in the upper zone of the uterus, and its formation, so far as its area is concerned, is practically completed at the end of the sixth or seventh month. We also know that after this period there is very little enlargement of the upper zone of the uterus. These are conditions which make the danger of placental separation almost *nil*. In the latter third of pregnancy, the increase of uterine capacity is largely at the expense of the lower third of the uterus. If, therefore, the implantation be in this inferior zone, it is rational to expect placental detachment as a result of the rapid growth of this area, occurring as it does after the placenta has attained its full size. Before considering the causes of low implantation it may be well to inquire why the ordinary site is in the upper third of the uterus. Doubtless the principal reason is because it is to this portion that the ovum first has access. The probability is that in a normal uterus the ovum will go but a short distance from the point of entrance before it becomes attached to the uterine mucous membrane. This will determine its permanent location and consequently the position of the placenta. The upper portion is the roomiest part of the normal uterus. The intrauterine pressure or tension is less here than at any other point. The influence of gravity can

be practically disregarded, as it would be neutralized by the slightest degree of adhesion or of resistance on the part of the uterine tissues.

In regard to the changes which occur when the ovum attaches to the uterus, and the factors which determine the attachment, we have always been taught and believed that for some reason the ovum fixes itself to a certain portion of the uterine mucous membrane and very promptly the mucous membrane is thrown about it; that is, the mucous membrane is reflected and forms what is known as the decidua reflexa. This is reported in *Progressive Medicine* for September, 1900, compiles the history of a case which I think very interesting in this connection. It was reported by Dr. Peters, connected with the University of Vienna, and was the property of instructor in gynecology and obstetrics, made an autopsy on a waitress who suicided within a day or two after the failure of her menstruation to appear, fearing that she was pregnant. Within two or three hours after death an autopsy was made, and he discovered the ovum as a small protuberance on the posterior wall of the uterus near the fundus. This is a very interesting fact from the fact that the ovum was probably more than two or three days old, and it is the earliest recorded in the history of an ovum that histological investigations have been able to find. The famous case of Leopold was one in which the ovum was eight days old. In reference to the formation of the decidua reflexa, from his investigation he laid down the law that the ovum attaches itself to a place where there is a break in the mucous membrane, and very rapidly sinks into the mucous membrane until the edge of the ovum is practically on a level with the epithelial covering of the mucous membrane; that is, it just buries itself in the mucous membrane, and very promptly there is thrown over the ovum a fibrinous covering, a blood clot, and in this manner the decidua reflexa is developed. He lays down the law that the formation of the placenta begins at once. He is inclined very strongly to believe that Peters is right in his theory of the formation of the decidua reflexa, and that it is not a part of the mucous membrane.

There is a theory, which has some able supporters, that placenta previa is not due to a low implantation, but to the normal development of the placenta on the lower portion of the decidua. This claim, however, seems to be made on purely theoretical grounds. On the other hand, it must be admitted that the causes assigned to account for a low implantation have not reached mainly by inductive reasoning.

A possible cause is disease of the tube through which the ovum passes. If, owing to infection of the tube or hydatidiform degeneration, the ovum becomes embedded in mucus, it might remain low in the uterus before effecting an attachment to the uterine mucous membrane causing leucorrhœa in the same manner. Late fertilization might be a cause, in that attachment of the unfertilized ovum would not

Enlargement of the cavity of the uterus may cause a low implantation. Such a condition is most frequently due to subinvolution. The cavity may be enlarged by submucous fibroids. In some cases of dysmenorrhea, also, the uterine cavity is enlarged as a result of endometritis and excessive muscular contractions.

DR. CHAUNCEY D. PALMER read a paper entitled

THE TREATMENT OF PLACENTA PREVIA.¹

DR. WILLIAM GILLESPIE.—In reference to the placenta developing on the decidua reflexa, if that be true it might explain the extensive development of a broad placenta. The explanation which occurs to me as the most rational is that the ovum being implanted on a portion of the uterus where the nutrition is not as good as at the fundus, it sends out prolongations like the roots of a tree, which spread out in order to get nutrition, and that is the reason why a broad placenta is formed.

I wish to commend the treatment of the case. In a case of this kind I believe version promises much better results than forceps. The question of the causation of death is one which in the absence of a postmortem might be speculative. Not only heart clot but also thrombosis of the pulmonary artery is reported quite frequently, and sometimes the stethoscope fails to reveal a clot in the heart or the pulmonary artery. I had one case in which I was satisfied the patient died from a heart clot and there was no evidence of any difficulty of this kind. She seemed a little exhausted and the pulse a little rapid. The case was twins and both children were delivered before my arrival. I had never seen the woman before and knew nothing of her. I examined her chest hurriedly and concluded she was nervous from her experience of being delivered without any one being present to help her. Within an hour afterward she died. She had a violent paroxysm of dyspnea after I left, as described by her friends. I have no doubt in that case the causation of death was a clot in the pulmonary artery.

Playfair wrote some articles on this subject a number of years ago which were read before the London Society. I think he reported some cases in which the physical signs did not bear out the diagnosis, but the postmortem did.

Dr. Stewart made one remark in his paper that I would like to have made clear. Many people make the mistake of perforating the placenta when it is not absolutely necessary to do so. I should judge from the doctor's remarks that if he could get by the edge of the placenta he would always prefer to go around rather than through it. It is a well-known fact that the mortality of children is greater when the placenta is perforated than when it is not. If a good-sized vessel is broken by this process, then you get a hemorrhage from the child itself.

In reference to the matter of tamponing, I believe one can be

¹See original article, p. 294.

put in which will control the hemorrhage; that while it fills in the space entirely, it will control the hemorrhage, but little will be extravasated; and it will also aid in separating the placenta from the lower uterine segment, thus giving results as described by Barnes and as mentioned by Dr. I think tampons very useful in cases where the cervix is rigid. I recall one case where the cervix was so rigid that I could scarcely get in one finger, but after sweeping it around the cervix and separating the placenta it was dilated. The placenta seemed to act to prevent dilatation of the cervix.

In reference to plugging with the hand, I think the better. In reference to plugging with the hand, I think the better. The hand will not fill the space fully and there are spaces around the hand where the blood can get out. The breech or some other portion must be pushed down into the cervix to stop the hemorrhage.

In response to the question as to position on Cesarean section for placenta previa, I would advocate this measure if there is a placenta previa in the presence of a fibroid tumor interfering with the normal extraction of the child, or cancer of the cervix. If, in short, there was any condition interfering with the delivery of the child. I can hardly conceive of anything that would justify us in doing a Cesarean section for placenta previa alone, even if central. To do it for a lateral attachment would be the height of folly; to do it for a central attachment would be to do it with small prospect of benefit to the child and small prospect of benefit to the mother, because the more the attachment the earlier labor comes on. The vast majority of cases of placenta previa are premature, especially of the central type. The children are small and ill-nourished. The great majority of the children's lives are sacrificed in the first hemorrhage, if at all.

DR. BYRON STANTON.—I was so unfortunate as to have two of these cases in September last, both of them central placenta previa, and both occurred in consultation with other physicians. In the first case the child was dead when I saw the case. The operation was resorted to, and the mother recovered from the operation, but died a week later from secondary hemorrhage. In the second case the woman had not lost a great deal of blood. She seemed to be in a pretty good condition and I found the cervix sufficiently dilated to allow me to perform version, which I did. But before I could get the child turned the woman hemorrhaged so much blood that it resulted in her death. Injections of salt solution, hypodermatic injections, etc., etc., were all to no purpose. The child died the next day. In both cases hemorrhages had occurred three times before labor. In two cases which I have had of central implantation, I have gone directly through the placenta to get at the child. In the other cases which I now recall I went, not through the placenta, but around it to get at the child. In both cases where delivery was effected by going through the placenta the children were born alive. In regard to the relation

of version and forceps, I would generally give the preference to version in cases of placenta previa, because in few of the cases is the cervix sufficiently dilated for the quick application of forceps. I think also that hemorrhage can be more quickly stopped by version than by the application of forceps. I have never seen a woman die from sepsis following placenta previa. I have had about eighteen cases.

DR. ARTHUR W. JOHNSTONE.—With everything that Dr. Stewart has said in his paper I heartily agree, except in one thing. If I understood him correctly he said that it was dangerous to tampon where the waters were present. I agree with him that it is dangerous business to tampon when the waters have been discharged. This calls to mind the case of a little negro prostitute who was pregnant from four to five months. It was a case of placenta previa, and the cervix was dilated so that I could get two fingers into it. I put her in the Sims position and tamponed the cervix and whole vagina. This was done in the morning, and in the afternoon there had been no hemorrhage. On the next morning there was the tampon packed squarely into the middle of the placenta, with the sac of waters and fetus floating behind it. This girl lost scarcely any blood, but I believe had it been a lateral attachment there would have been hemorrhage enough to have filled up the uterus and it would have been a very serious matter instead of an easy delivery. The presence or absence of water is the guide which should determine our use or non-use of the tampon.

In reference to Cesarean section, in the cases where this procedure is indicated the children are not worth saving and the mother is pretty nearly gone. This is true in the vast majority of cases. Of course occasionally a child is viable. If the pelvis is perfectly normal and the cervix is dilatable I think a tampon the thing to employ.

DR. JULIA W. CARPENTER.—In my practice I have had two cases of placenta previa, in both of which the placenta was situated very low down, a considerable portion passing over the os. In both cases the children were lost, but the mothers recovered. When the hemorrhage began tamponing was resorted to and quick dilatation of the os followed. In the meantime the head had settled down so firmly in the pelvis that the hemorrhage was somewhat checked, so that the birth of the child could go on naturally. Under these circumstances it was not considered best to attempt version, but to allow Nature to do the work. There was, as usual, great loss of blood in both cases, but the mothers were saved, one quickly, the other slowly, recovering.

DR. ROBERT W. STEWART.—What is that mysterious process by which an embryonic ovum comes down into the uterus and finds a lodgment there, when another ovum passes on down and escapes into the outer world? What is it that produces a congestion of the mucous membrane or swelling of the mucous membrane, and, when the impregnated ovum falls into place causes it to immediately surround it? The decidua reflexa is just as

much mucous membrane when this takes place as it is impregnation occurs. Peters' case as reported by Dr. simply means that the process was going on and that the dropped into its little cavity on account of the normal s of pregnancy and there found lodgment, and the pro covering it up then began. Now, if we take that one th follow it up, we have Hofmeier's idea that when it drop into the uterus and secures a lodgment low in the org does not find enough nourishment, the placenta spreads the branches of a tree and passes over the internal os to lodgment with the chorionic villi in the mucous memb the other side, and that is the essential cause of placenta. Now, if some parts are subject to inflammatory process are deprived of their mucous membrane and the ovum down over them. In cases of chronic endometritis the u well adapted for the falling down of the ovum into th part of the uterine cavity.

In reference to perforation of the placenta in the case re I used no instruments. I passed my finger in and w around carefully to see whether I could get around the edg idea was to get at the edge and loosen it up, causing a re of the placenta, and, without rupturing the membrane, the uterus contract down on the fetus and control the rhage in that way. I passed two fingers in and found th nal os was dilated all the way around; and as I pas fingers up and tried to find the free edge I found just as n sistance at one place as at another, and, as far as the s touch could determine, the placenta was just as thick place as another. I then tried to pass my finger throu doing that I must have shoved up the placenta and deta completely, because it was thrown off into my hand. The question but that the case was a genuine one of centra planted placenta, in spite of Herman's assertion to t trary, i.e., that they do not exist.

As to plugging with the hand, there was no effort r do so. I said that when I had my hand in the uterus (s of version as opposed to forceps) I felt that I had a more plug in my hand than I would otherwise have had.

I believe that the case Dr. Johnstone related was, a afraid my own case was, one in which simply the whole p was detached and thrown down through the internal os, a allowed the head to come down. The reason I do not this was so in my own case is that I could not push up th which was still in the bag of waters, and get to one side other of the placenta.

As to the question of performing Cesarean section, if w believe the statistics quoted by Hirst the mortality rate cases is about one or even less in every 104 cases. If we c such a low rate as that it seems to me that we do not nee sort to Cesarean section. I can, however, understand

stances in which placenta previa centralis can be best treated by that operation. There may arise circumstances in which Cesarean section ought to be performed for placenta previa pure and simple—in cases complicated by fibroids, or contracted pelvis in which a man can do nothing in dilating the cervix or stopping the hemorrhage.

This woman died, not because she lost so much blood, not because of any violent manipulations. She did not suffer at all from these, because she was completely under the influence of chloroform; and she did not die from the chloroform, because she recovered consciousness fully. She did not die from pulmonary thrombosis. I think she died from shock.

Dr. W. H. WENNING presented a specimen of

FIBROID TUMOR OF THE UTERUS COMPLICATING AN INTRALIGAMENT-
OUS CYST.

The incision was about six inches long. As soon as I reached the lower angle of the incision I found a reduplication of the peritoneum on the abdominal wall, so the tumor appeared to be below the peritoneum. I then endeavored to peel it out, but was unable to do so. It appeared to be a broad-ligament cyst. The tumor mass was so firmly attached to everything that all anatomical landmarks were entirely destroyed. I then introduced a trocar, drained off some of the fluid, and endeavored to loosen the sac from its attachments. There seemed to be a number of cysts, and in peeling the mass off I was about to cut into the rectum when I found that the lower intestine was a part of the cyst and appeared to be thoroughly implicated. I then passed a tube into the rectum from the anus as high up as possible. It could now be plainly seen that the rectum was partly denuded, with the muscular fibres of the wall partly stripped off. After working over to the other side it was found that the ureter was also incorporated in the mass. I finally detached the fibroid from its pelvic attachments, and then put on a strong pedicle clamp and cut off the tumor from the upper part of the uterus. After denuding the walls of the rectum I decided to cover over the rectum with a portion of the cyst wall, still attached to the rectum and inseparable from it, so as to give strength to the rectal wall. This canal was so thin that the tube which I introduced seemed on the point of perforating it. There was considerable bleeding, not from any large vessel, but oozing from the surfaces which were separated from the pelvic wall. This was controlled by the use of hot saline solution and then the abdominal cavity was closed. Before doing so I packed quite a large strip of gauze tightly into the posterior cul-de-sac and also between the bladder and uterus, so as to prevent any further bleeding. When the gauze was removed a grumous, foul-smelling material was discharged. The cavity was then washed out with a two per cent lysol solution until the solution came out clear. After this the opening was closed. There was great difficulty after the operation in getting the patient's bowels to

move. She vomited considerable biliary matter, which was ever, not feculent. Calomel and salts had no effect on her. She was then given enemata of water, glycerin, and turpentine, and finally with a loud explosion the bowels discharged their contents, and up to this time they have continued to move normally. Her vomiting has ceased the last couple of days.

DR. SIGMAR STARK.—I believe that if Dr. Wenning had performed this operation over again he would do it in accordance with the suggestion which he let fall in the latter part of his remarks, viz., open the cyst, sew it into the abdominal wound, and remove it. That certainly would bring about a cure and expose the patient to little or no danger. The doctor stated that he was compelled to leave some part of the cyst wall behind. I do not know from personal experience or from the literature how such cases behave, but it seems to me if some of the secreting portion of a cyst is left behind and exposed so that it can discharge into the free peritoneal cavity some trouble must ensue. It was exceedingly interesting to hear from the doctor subsequently whether this secreting portion of the cyst which remained was giving the patient trouble.

DR. C. D. PALMER.—The success which has attended this operation proves the wisdom of the treatment. At the same time it is questionable in my mind whether Dr. Wenning, if he had known exactly what he had to contend with, would have done exactly as he did. I have but one suggestion, that when the abdominal wall is opened it is extremely important to stop and consider, and perfect our diagnosis. Many times it is impossible to make an accurate diagnosis until the abdominal cavity is opened; and many times we err in trying to proceed with the operation as soon as the cavity is opened, and before we have made a positive diagnosis. When the abdominal cavity is opened we have facilities for exploration, and we can find out exactly what we have to deal with. The question occurs to me: what operation could have been done in this case than hysterectomy, leaving the cervix, taking out the broad ligament with the ovary on the one side, going down to the cervix, cutting through the broad ligament and going up on the other side—possibly leaving the ovary on the other side if healthy? My idea would be to remove all the pelvic genital organs save the cervix.

DR. MAGNUS A. TATE reported a case of

TUBERCULOSIS OF RIGHT TUBE AND OVARY.

Mrs. M., aged 37, married. Referred to me by Dr. M. with the following history: Seven years ago had an attack of peritonitis while living in St. Louis. Was under care of a physician at hospital for three months. Up to three years ago was comparatively healthy and free from pain, except in right side during her menstrual periods. Patient thinks her present illness dates from the attack of peritonitis seven years ago, which was followed by pain at times in the right ovarian region, and

increasing in severity. When she presented herself for treatment the pain was simply unbearable. Family history was good; mother and father both living. No history of tuberculosis or carcinoma in the family. The following symptoms were complained of: headache, aggravated during menstrual periods; rest always broken, sleeping only a few hours at a time; digestion poor, frequent eructations of gas and little or no appetite; urination every one to two hours; and constant pain in the right side, as described above.

Upon vaginal examination I found the uterus pushed over to the left side, and on the right side was felt a mass as large as a good-sized child's head.

On November 1, assisted by Drs. Meguire and R. B. Tate, I operated. It was with much difficulty that I entered the abdominal cavity, because the omentum and intestines were adherent to the abdominal wall. After gaining a good view of the abdominal contents and mopping out ascitic fluid, I found that the intestines, peritoneum, and pelvic organs were studded with tubercular nodules, the small and large intestines on the right side were adherent and matted together, and underneath this adherent mass I could feel a semi-fluctuating tumor. With difficulty I separated these adhesions, and then found that I was dealing with an intraligamentous cyst. Upon splitting open the broad ligament, which was studded with nodules, a clear, limpid fluid was excavated. Below, and crowded down into the pelvic cavity, I found a tubercular tube and ovary, the latter the size of an orange and filled with thick, greenish pus. I was able to shell out part of the cyst wall, ligate the major portion of the tube, and remove this ovary (without rupture). The appendix was five inches in length, curled down back of the bowel in the remaining mass. It was removed with difficulty. Gauze was packed into this big cavity and brought out through the abdominal opening. The abdominal cavity was mopped out with gauze, and its walls closed by through-and-through silkworm-gut sutures. The patient did nicely for twenty-four hours, when the usual symptoms of septic peritonitis set in, and she died on the evening of the fourth day.

This case presents many interesting features.

First. Was the attack of peritonitis from which she suffered seven years ago of tubercular origin? If so, would a patient's lungs be absolutely free from any sign of tuberculosis for such a length of time when the abdominal cavity was so infected?

Second. This case was a typical tuberculosis of the right tube and ovary, a rare condition.

Third. The left tube and ovary and the uterus were macroscopically free from tubercular nodules.

Fourth. The right broad ligament contained a cyst, complicating the case.

Fifth. The intestines, peritoneum, and omentum were studded with tubercular nodules.

DR. ARTHUR W. JOHNSTONE.—This is not such a rare condition. In the reports of the Johns Hopkins Hospital covering a period of five or six years, where 300 cases were found, estimated that about ten per cent of all inflammations of the ovaries were due to tuberculosis. While Dr. Tate's case was as far as the degree of advancement of the tubercular process concerned, my experience is that one or both sets of appendages may be involved, and there is generally a good deal of adhesions anywhere from a pint to a quart, with tuberculous masses everywhere. The reports of the Johns Hopkins Hospital show that in these cases generally recover very nicely, and many cases have been overlooked. As I remember, in the first hundred that were operated upon five per cent could be diagnosticated by the use of the microscope; in another five per cent this was not possible, but the tubercle bacillus was found subsequently. In my own experience I have run across involvement of the lungs in but one or two cases. Dr. Porter saw a case in which there had been several hemorrhages, and both ovaries were tuberculous. She was seen on the street the other day and she was looking apparently well.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON

Meeting of November 5, 1902.

The President, PETER HORROCKS, M.D., in the Chair

MR. SAMPSON HANDLEY read a paper on

PARATUBAL HEMATOCELE.

He pointed out that encysted hematocele, with a fibrous capsule clasping the ostium, and independent of, though perhaps partially adherent to, the viscera (peritubal hematocele), was described by Sänger and Taylor. It was more frequently described than was commonly believed, since the sac had often been mistaken for a portion of the tube. Its capsule consisted of fibrous tissue and was lined with a layer of fibrin.

All encysted hematoceles arising from tubal bleeding were described by Sänger and Taylor as peritubal, and they were not necessarily, as the result of hemorrhage from the ostium. The object of this paper was to show that tubal rupture might produce an encysted hematocele adherent to the tube and encysted in the rupture in its wall. Such a hematocele was not peritubal but rather paratubal. Its sac might be mistaken for a part of the tube.

These statements were chiefly based on a re-examination

specimen 2480 in St. Thomas' Hospital Museum, removed by Dr. Cullingworth, and described in the catalogue as a sacculated hematosalpinx.

Clinically the symptoms of the case were eleven weeks' amenorrhea, followed by vaginal hemorrhage and recurrent bearing-down pains during the three months which elapsed before operation. There was a soft, elastic swelling in Douglas' pouch; the right appendages were absent from their normal situation; right tubal mole was diagnosed, and recovery followed operation.

The specimen was reported on by a committee of this Society, but no definite opinion was expressed as to its nature.

Re-examination showed a healed rupture in the wall of the tube where the blood sac was adherent to it. Muscle was absent from the wall of the blood sac, which exactly resembled the wall of a peritubal hematocele—that is, it consisted of fibrous tissue organized from peritoneal lymph, not of fibrin. This and other evidence negatived the supposition that the wall of the tube took any share in the formation of the wall of the blood sac.

A search through the literature had supplied one example of paratubal hematocele in a modified form (part of the mole lay in the sac of the hematocele, part in the tube), and two connecting links or intermediate forms between peritubal hematocele and the typical paratubal hematocele now described.

It seemed probable that the slow bleeding which formed an encysted hematocele did not, as is generally held, precede, but went on *pari passu* with, the formation of the sac. Moreover, aneurysmoid distension of the developing sac, by continuously altering its relations to the surrounding peritoneal surfaces from which it is derived, separated it from them, and accounted for the otherwise inexplicable tumor-like individuality of the hematocele. The original lymph thrown out round the rupture, instead of being stretched out in the form of bridges or membranes, was evenly distended into a complete spherical sac surrounding the blood. The author suggested the word dynamocele as appropriate to such a product of fluid pressure.

DR. EDEN said that on reading Mr. Sampson Handley's paper a few days ago he had been reminded by it of a specimen which had been in his possession for nearly a year, and which bore some resemblance to the condition described as "paratubal hematocele." He now showed the specimen to the Society, but regretted that he was unable to give any clinical notes of the case at the present time; on a future occasion he would furnish a full report to the Society. The specimen consisted of a Fallopian tube with a large, oval mass of blood clot firmly attached to the upper surface about its middle. The abdominal ostium was occluded; a rather large cystic ovary was adherent to the outer part of the tube. The mass of blood clot had the general character of a tubal mole, and this view of it he was prepared to maintain, although he had failed to find chorionic villi in it. The part of the tube wall to which the clot was adherent was thinned, and a

section appeared to be infiltrated with blood. The view originally taken of the specimen was that it was an instar tubal rupture, that the tubal mole had been extruded through the rupture and had remained attached to the tube, which rupture had afterward healed beneath it, thus restoring the continuity of the tube and cutting off the mole from its lumen.

On first reading Mr. Sampson Handley's paper it had occurred to him that possibly his (Dr. Eden's) specimen was not a mole, but a paratubal hematocele.

After listening to the demonstration of his case which the author had laid before the Society that evening, he was, however, disposed to retain his earlier view of his own specimen. He thought that Mr. Sampson Handley had clearly shown that a hematocele may be formed around the site of a tubal rupture in the same way as we have long known that it may be formed around the patent abdominal ostium. This was the real lesson of his paper. Dr. Eden was inclined to think that the specimen which Dr. Bell had shown to the Society was perhaps a better example of a paratubal hematocele than that described by Mr. Sampson Handley. He was not sure that the reasons advanced by the author for regarding the case as primarily one of tubal abortion were conclusive, but even if the ovum had really been extruded through the rupture, and not through the abdominal ostium, this did not invalidate the general purpose of the paper.

MR. BLAND-SUTTON was instructed and greatly interested by the paper, because these encysted collections of blood in relation to tubal pregnancy had been the subject of careful study by him since Sanger and Taylor had published their observations. The main object of the paper was to demonstrate that "effusion" of the blood slowly effused after rupture of the tube might take place as well as in cases of incomplete tubal abortion. The fact that in some of the cases the reporters had failed to find a "mole" was capable of explanation, because the mole in the specimens might be very small; he had exhibited to the Society a "tubal mole" which did not exceed the dimensions of a pea.

In some of the specimens it was easy to realize that such a mole could easily escape detection in the course of an operation, and might even be buried in the clot of the "encysted hematocele."

It was also important to bear in mind that the extra-uterine capsules which surrounded the effused blood in case of "incomplete tubal abortion" did not require blood for their formation. Similar capsules formed around the products effused from the peritoneal ostium of the tube in acute salpingitis; the most striking example of this which had come under his own notice occurred in connection with acute salpingitis, probably of gonorrheal origin. The specimen was described and figured in the *Lancet Medical Journal*, 1896, vol. ii., p. 1310, as a cyst of unusual size, the character surrounding the ostium of the Fallopian tube, but he had not come to appreciate its nature after a further study of the

sules surrounding blood effused in cases of incomplete tubal abortion.

DR. GRIFFITH agreed with the general opinion expressed as to the value of Mr. Handley's paper, but he thought that it was undesirable to adopt different names for the two varieties of the hematocele described, as they appeared to be essentially identical, though one was produced by leakage from the open tubal orifice, the other from a rupture in the wall of the tube. It seemed more necessary to devise a name for that class of hematocele, to distinguish them from the common larger hematoceles, which were enclosed by adhesions of the various organs displaced by the effusions of blood.

The terms "peri" and "para," if they were to have any definite significance, should be confined to their original uses, "peri" signifying intraperitoneal, "para" extraperitoneal effusions of blood, serum, or pus.

THE PRESIDENT said the terms "peritubal" and "paratubal" hematocele did not convey to one's mind the kind of hematocele meant by the coiners of these words. He agreed with Dr. Griffith that "paratubal" gave one the idea of something in the cellular tissue of the broad ligament near to the tube, which was not what the author meant. Nevertheless, apart from this question of nomenclature, there could be no doubt as to the meaning Mr. Handley wished to convey; and so far as this particular kind of hematocele went, he had practically proved his point. One of the most interesting problems raised was the dynamics of its production, and he could not help feeling that in all probability the hemorrhage through the ruptured tube was, in these cases of so-called paratubal hematocele, not only small in amount and slow in speed, but also that the reason the blood did not flow freely into the peritoneal cavity was because the peritoneum was the last to rupture, and that before doing so the blood effused beneath it had time to clot and to form a fibrinous capsule.

In the peritoneal variety there was probably some lymph round about the abdominal ostium of the tube, which took the place of, and acted like, the peritoneum in the paratubal hematocele.

MR. HANDLEY, after thanking the Society for its reception of his paper, mentioned that Mr. J. W. Taylor had informed him of the interesting fact that he (Mr. Taylor) had suggested the true nature of Dr. Cullingworth's specimen in a review of Dr. Roberts' "Outlines of Gynecological Pathology," published last February. The suggestion was, however, tentative and was subsequent to his own work in point of time.

In replying to Mr. Sutton, Mr. Handley suggested that a similar independent sac of peritoneal lymph might be formed round a leaking appendix vermiformis, and that cases described as "floating appendical abscess" might prove to be of this nature. He also thought it possible that some of the cases described as

"fibroid of the Fallopian tube" might turn out to be fibroid paratubal hematoceles.

MR. BLAND-SUTTON exhibited a specimen of primary cancer of the Fallopian tube. He pointed out that extension of cancer of the uterine segment of the Fallopian tubes was not an infrequent event in the later stages of cancer arising in the so-called corpus of the uterus. Often he had been unable to determine whether the disease arose primarily in the uterine segment of the tube, or extended into the uterus, or *vice versa*. In the present case the disease arose in the tubal ampulla near its ostium, and there was an unusually long unimplicated stretch of tube between the tube and the uterine cavity. The value of irregular vaginal losses as a leading sign in diagnosis was to be noted. The source of the blood was undoubtedly from the disease in the tube.

The following specimens were shown: (1) Fetus from a case of spontaneous expulsion, by DR. COMYNS BERKELEY. (2) A case of ectopic gestation, by MR. BLAND-SUTTON and DR. R. H. BELL. (3) A case of paratubal hematocoele, by DR. R. H. BELL.

The reports of the Pathology Committee were read.

BRIEF OF CURRENT LITERATURE

OBSTETRICS.

Purulent Infiltration of the Cervix in the Puerperium.—A unique case is described by H. Chéron (*Bull. de la Société de Paris*, Nos. 5 and 6). The labor was spontaneous and unattended except that the placenta was retained three hours. The placenta was macerated. Signs of sepsis beginning the next day. On careful examination, but this disclosed only a thickened cervix. Digital curettage and repeated intrauterine douches on account of the fetid discharge caused only temporary improvement. At the autopsy there was found a purulent infiltration of the cervix, but no purulent collection which could have been drained. If the diagnosis been possible, vaginal hysterectomy might have removed the septic focus in time.

Extrauterine Pregnancy in an Accessory Tube.—and Fieux (*Ann. de Gyn. et d'Obst.*, Oct. and Nov.) report a case of ruptured ectopic gestation. At the operation a small unviable embryo was found among the blood clots extruded from the ruptured tube. Both tubes were removed in view of the frequency of recurrence of extrauterine pregnancy. The chief point of interest in this case was that the tube was unruptured, the ovum being contained in an accessory tube ending in an independent pavilion and not communicating with the Fallopian tube.

Extrauterine Pregnancy.—In discussing the diagnosis of extrauterine pregnancy in a paper based upon two

Tuszkay Odön (*Gaz. de Gyn.*, Oct. 15) urges curettage of the uterus and examination of the material thus obtained in doubtful cases of ectopic gestation. He holds the possibility of inducing abortion, in case the ovum should be found in the uterine cavity, not of sufficient weight to counterbalance the chance of making the diagnosis in the dangerous event of the pregnancy being extrauterine.

Spontaneous Rupture of the Uterus.—F. Kleinertz (*Zent. für Gyn.*, No. 40) records a case of spontaneous complete rupture of the uterus in a poorly-nourished 39-year-old XIpara, who had had eight easy labors and two abortions more recently. She had had leucorrhea for fourteen years, but gave no other history of pelvic disease or of intrauterine treatment. Soon after the onset of pains during sleep, the membranes broke, and within ten minutes the severe pain of the uterine rupture was felt. The living child, of normal size, was found in the peritoneal cavity. The uterus, removed by supravaginal hysterectomy, showed no macroscopic changes except the rupture, and microscopic examination showed only in some places a separation of groups of muscular fibres from each other by a homogeneous thin layer of tissue.

Pregnancy and Labor after Uterine Rupture.—W. Stroganoff (*Zeit. für Geb. u. Gyn.*, Bd. xlviii., H. 1) has followed two cases of uterine rupture after suture of the complete uterine laceration and recovery. Within four or five months each of the women again became pregnant and was delivered without accident. In many cases a second rupture of the uterus may occur, so it is always necessary to be prepared for an emergency laparotomy and best to keep the woman under close observation during the last two or three months of pregnancy. A transverse rupture of the lower uterine segment lessens the normal pliability of that organ and may interfere to some extent with engagement of the presenting part. It is best to assume that the uterine wall is diminished in strength in the region of the former tear, and so to assist labor by combined podalic version (Braxton Hicks) if the fetus is movable and membranes unruptured, or by bringing down a foot in breech cases. After labor the site of the former rupture must be examined by intrauterine palpation.

Labor after Vaginofixation of the Uterus.—In women still of child-bearing age Leo v. Lurgen (*St. Peters. med. Woch.*, No. 41) would avoid vaginofixation, and, if any operation is required, would perform ventrofixation or the Alexander operation, or fixation of the round ligaments according to Wertheim's method.

Medical Indications for Interruption of Pregnancy.—L. M. Bossi (*L'Obst.*, Nov.) summarizes these indications under these headings: When the life of the mother is almost surely compromised through some medical complication, unless the uterus is emptied immediately (septicemia with dead fetus, severe pneumonia, intense eclampsia), interruption of pregnancy is indicated. When the medical complication (tuberculosis, severe cardiac disease) is such as to suggest that continuation of the preg-

nancy will enfeeble the patient to such an extent as to be unable to pass through labor or to lead to death soon after the termination of premature labor is necessary.

Version Followed by Extraction for Pelvic Contracture.—Krull's (*Arch. für Gyn.*, Bd. lxxvii., H. 2) paper is based on 100 cases of version and extraction for contracted pelvis. He states that with a child of medium size these procedures can be successfully carried out in cases of flat and flat-rachitic pelvis. In a generally contracted flat-rachitic pelvis with a diagonal conjugate of 9 centimetres, in a generally contracted pelvis with a diagonal conjugate of 9.5 centimetres. With primiparae version is to be avoided, except when the indication is most urgent. With multiparae with a narrow pelvis and the head in a high position, spontaneous delivery may occur, but version and traction are often of value.

Ovariectomy during Pregnancy.—Paul Bar (*Bull. de la Soc. d'Obst. de Paris*, Nos. 5 and 6) illustrates the occasional occurrence of the pregnant uterus by reporting a case of cyst of the ovary whose pedicle underwent torsion at the fourth month, relieved by the usual symptoms. Gestation continued until after removal of the tumor.

Passage of Alcohol into Amniotic Fluid.—M. Niclot (*Bull. de la Soc. d'Obst. de Paris*, Nos. 5 and 6) observes, by injecting alcohol of 20 per cent strength into the stomach, that it can be found in the amniotic fluid within five minutes after the injection, and that the portions in the maternal blood and the placenta increase in about the same proportions.

Cause of Implantation of the Ovum in the Fallopian Tube.—Erich Opitz (*Zeit. für Geb. u. Gyn.*, Bd. xlviii., H. 1) ascribes the occurrence of extrauterine pregnancy to pathological changes in the tube. In all of his 23 cases signs of preceding salpingitis were found. Of the tubal lesions, only growing together of the folds and less frequently protrusions of the tubal epithelium are considered regular causes for implantation of the ovum in the tube. All other obstructions are looked upon as merely incidental occurrences of no general significance. The writer discusses other current views of the etiology of ectopic gestation.

Hysterectomy for Puerperal Infection.—H. Fehling (*Arch. für Geb. u. Gyn.*, Bd. xvi., Oct., *Ergänzungsheft*) divides puerperal diseases of the genitals into toxic and infectious, regarding merely a local focus in the uterus in intoxication or sepsis while in infections the process is not confined to the uterus. The former is usually severe and general. Hysterectomy is useless in the former, general septicemia and should be avoided in these. It is rationally employed only when the seat of intoxication is limited to the uterus, when there is decomposition of retained placental tissue, sloughing of myomata in the uterus or of retained fragments of the ovum after abortion when removal in another way is impossible. In some cases of puerperal phlebitis of the uterus (pyemia) hysterectomy may

use, sometimes combined with ligation or extirpation of thrombosed veins of the broad ligament and ovarian veins, or the latter operation alone.

In reporting upon the same subject, G. Leopold (same) also restricts the indication for hysterectomy in severe puerperal infection to cases in which the uterus alone is the seat and active source of the process and other treatment is fruitless, such as irremovable sloughing retained placenta. Hysterectomy alone is ineffectual if the process has spread outside of the uterus. In rapidly-advancing cases the purulent focus must be sought and emptied, particular attention being paid to venous thromboses.

Pathology of the Placenta.—In discussing the pathological findings in a case of placentitis fibrosa, A. Solowij (*Monats. für Geb. u. Gyn.*, Bd. xvi., H. 4) reaches the conclusions that the chief features in this affection are inflammatory change in blood vessels involving all layers, especially the intima, increase of connective tissue, and formation of new blood vessels. Hystogenetically it is the same process as in the white infarct, hyperplasia or hypertrophy of the stroma of the villi, or so-called benign placental tumors. Cases formerly described collectively as benign placental tumors are not really neoplastic, but probably of inflammatory nature, and correspond more or less closely to the picture of fibrous placentitis. Syphilis seems to be the cause of the majority of placental changes.

Indications for Interruption of Pregnancy for Nephritis.—M. Hofmeier (*Monats. für Geb. u. Gyn.*, Bd. xvi., Oct., *Ergänzungsheft*) advises interruption of pregnancy in the interest of the mother in chronic nephritis when the secondary appearances of the disease become worse instead of improving under treatment. With the so-called kidney of pregnancy, pregnancy should be interrupted in order to avoid eclampsia where symptoms increase in spite of dietetic treatment. In acute nephritis during pregnancy a favorable termination may be expected, and interruption of gestation is inefficacious in threatened eclampsia.

Interruption of Pregnancy for Internal Diseases.—F. Schauta (*Monats. für Geb. u. Gyn.*, Bd. xvi., Oct., *Ergänzungsheft*) discusses this subject in detail. He holds that while in many cases the abortion is solely in the interest of the mother, the sacrifice of the child may be only apparent, as protraction of the disease would probably eventually be fatal to both mother and child, and in other cases the interruption of pregnancy may be the only means of saving both.

Diagnosis of Abortion by Uterine Glandular Changes.—Opitz has held that certain changes in the uterine glands were absolutely characteristic of pregnancy, and that the finding of such appearances in curettings was positive proof of a recent abortion. Ludwig Seitz (*Zeit. für Geb. u. Gyn.*, Bd. lxvii., H. 2) claims to have found the same variations in cases of hypertrophic glandular endometritis. He does not claim that this was the condition which existed in Opitz's cases, but merely that as they are

found under other circumstances than pregnancy they are held to be pathognomonic of that state.

GYNECOLOGY AND ABDOMINAL SURGERY.

Genital Tuberculosis.—This subject was discussed by the International Congress of Gynecology and Obstetrics at Berlin by Veit, Martin, and Amann. J. Veit (*Monats. für Geb. u. Gyn.*, Bd. xvi., Oct., *Ergänzungsheft*) summarizes his views in the following manner. Tuberculous peritonitis is regularly seen; it is of two forms, ascitic and adhesive. The genitals are involved primarily, secondarily, or only in their peritoneal covering. Peritonitis with large masses not secondary to ovaritis, tumors or cancer are usually tuberculous. Tuberculous peritonitis may undergo spontaneous cure, though infrequently. Primary may cure; failure is usually due to advanced tuberculous of other organs. How cure is effected by operation is uncertain; it is probably through the action of normal serum or through the action of the body has acquired antitoxic principles. Operation is indicated in cases of recent peritonitis when it is causing symptoms; in chronic cases operation may require repetition. Chronic cases should be watched; if spontaneous healing does not soon occur, operation is advisable. Operation consists in incision through the ligamentum, evacuation of fluid, and closure of the wound. The presence of isolated genital tuberculosis is the only indication for abdominal operation.

A. Martin (same) calls attention to the frequent occurrence of genital tuberculosis which may be localized in any of the organs. Though occasionally primary, it is more often secondary. The bacillus may be introduced through the vulva (ascending infection); but it more usually comes from above (descending infection), chiefly from the intestine either directly or through the peritoneum or lymph nodes. The infection may be introduced through the blood. The infection may spread continuously beyond its bounds; usually several portions are equally diseased. In healthy intermediate areas. The primary focus often heals, but the process becomes very active in the genitals. Chronic inflammatory processes, puerperal, gonorrheal, and syphilitic, predispose to genital tuberculosis, similarly with dystrophic changes and hypoplasia. There are no known pathognomonic symptoms. Inflammatory disease of the appendages accompanying tuberculosis of other organs should suggest a tuberculous affection of the genital structures also. A sure diagnosis requires an anatomical examination. Usually it may be made by finding tubercles in the organs. Failing in this, the presence of tubercles is taken by microscopic examination confirming the diagnosis. The prognosis is serious, but favorable only in extensive cases. If the process is widespread, especially in other organs, general and symptomatic treatment only is indicated. If localized in the genital organs, or if the disease in the genitals is advancing dangerously, extirpation of the focus of the entire genital apparatus may cure and so is indicated.

J. A. Amann, Jr. (same), says that congenital tuberculous

fection through the blood vessels may be localized in the genitals. The bacteria may first enter the lymph nodes and later the blood vessels. Primary tuberculosis of the external genitals of little girls may be due to local infection. In older children and adults infection is usually through the respiratory tract; more rarely the point of entrance is through the intestines and mesenteric lymph nodes, which become caseous, the bacilli then entering the circulation through eroded vessel walls. This primary focus may heal, while the secondary genital or other lesion extends and in turn gives rise to a general miliary tuberculosis. The circulatory route from the bronchial lymph nodes is the only absolutely proved way of this infection of the female genitals. Direct extension from the peritoneum, intestine, or through lymph channels seems rare. Pulmonary or bronchial tuberculosis also is almost always present. In man the genitals are involved in only three per cent of tuberculous cases; in women, in twenty per cent. Hypoplasia and chronic inflammatory processes—gonorrheal and puerperal—of the genitals of both sexes predispose to tuberculosis. The tube is usually earliest and most severely involved, next the uterus, cervix, and vagina, following the flow of secretions from the genital mucosa, or the different organs may be invaded simultaneously or at intervals through the blood vessels. The occurrence of primary genital tuberculosis in women through direct infection from without is very questionable. Only those cases should be considered proved in which a careful autopsy fails to find a primary focus in any other organ. The extent of the genital lesion is no proof that it is primary. The movement of tubercle bacilli into the tube may be accomplished by spermatozoa. The semen of a tuberculous patient may contain these bacilli, although his genital organs are not diseased. The bacilli follow the course of the genital secretion; the spermatozoa move in the opposite direction. It would be necessary to admit that they carry some bacilli attached to them. The chief danger in sexual intercourse with a tuberculous man seems to be the chance of infection of the respiratory tract. Primary tuberculosis of the external genitals or vagina with local glandular enlargement is almost never seen. Many prominent writers have never observed a case of primary genital tuberculosis in woman. The terms ascending and descending infection are inexact, since even in the cases designated as primary tuberculosis of the genitals the tube is the first organ involved. Prophylaxis of genital tuberculosis includes increasing the resisting power of the organism, removing the source of infection, and treating the predisposing causes such as gonorrhea and the puerperium.

Extraperitoneal Hypogastric Laparotomy for Cancer of Uterus and Vagina or Rectum.—The operation as described by A. Mackenrodt (*Berl. klin. Woch.*, No. 38) is as follows: A suprapubic incision divides the abdominal recti close to the symphysis and extends on each side to near the anterior superior spine. Raising this flap, the peritoneum is opened above the bladder and the wall of the latter organ is sutured to just below the symphysis

in order to prevent it from sinking too low. The uterus out, the appendages ligated and divided on each side pelvic wall. The peritoneum of the anterior abdominal wall then sutured to the posterior above the rectum, thus making the pelvic cavity extraperitoneal. The uterus and parametrium the vagina are removed and all pelvic and neighboring lymphatics thoroughly extirpated with intervening lymphatics. A drain is placed in front of the rectum, extending into the vagina. The bladder is then sutured to the posterior pelvic wall roofing over the recto-vaginal space. Drains of gauze are placed in the regions from which glands have been removed, and through the lateral portions of the cutaneous incision. The incision are sutured to the symphysis with silver and the skin with silk sutures. For rectal carcinoma the rectum, uterus, and surrounding tissues, are removed en masse. The large intestine is drawn down and sutured to the anterior pelvic cavity is closed and filled in in the same way as if the rectum is not diseased.

Carcinoma of the Uterus.—On the ground of his 120 cases, Wertheim (*Monats. für Geb. u. Gyn.*, Bd. x, Ergänzungsheft) again advocates total abdominal hysterectomy with removal of adjacent tissue and regional lymph nodes in carcinoma of the uterus. The importance of early as well as extensive operation is emphasized.

Arterial Ligation of Carcinoma of the Uterus.—(Zent. für Gyn., No. 41) favors bilateral ligation of the uterine and ovarian arteries in all cases of carcinoma of the uterus which are too far advanced for radical operation. In some cases hemorrhage ceased, but returned in a year in one case. The uterine discharge ceases only temporarily. Krönig ligates the hypogastric arteries with silk at their origin from the common iliacs; the ovarian, in the broad ligament; and the uterine, in the round ligament in that structure.

Lipofibroma of the Uterus.—Jacobson (*Ann. de Gyn. et d'Obst.*, Oct. and Nov.) describes a lipofibroma of the uterus in a woman 68 years of age. The tumor was about eight centimeters in diameter. Formerly a fibroma, it had undergone fatty degeneration.

Myomectomy with Retroperitoneal Treatment of the Uterus.—G. Heinricius (*Arch. für Gyn.*, Bd. lxxvii., H. 2) has performed myomectomy for uterine fibroids since 1894, chiefly by supravaginal hysterectomy and ligation of the uterus. He publishes brief histories of his cases, only two of which died. He acknowledges that enucleation of the tumor is the ideal method of treatment, but he does not consider this feasible when the tumors are multiple and small. The majority of women who require operation for fibromyoma have already reached an age at which conception is improbable.

Uremia Simulating Eclampsia.—Porak (*Bull. de Gyn. et d'Obst. de Paris*, Nos. 5 and 6) describes a fatal case of uremia with over twenty convulsions simulating eclampsia. I

ferentiated from the latter by the following points: occurrence of clonic right hemiplegic movements between the attacks, clearness and abundance of urine with small amount of albumin, subnormal temperature in spite of the frequent convulsions; autopsy showing lesions of chronic nephritis, not of severe acute infection.

Congenital Contraction of the Large Intestine.—Maygrier and Saillant (*Bull. de la Soc. d'Obst. de Paris*, No. 7) put on record an unusual case of congenital contraction of the large intestine. The symptoms and physical examination of the rectum suggested imperforation of the latter, and an artificial anus was formed in the small intestine near the cecum. Death soon followed. The autopsy showed a marked contraction of the entire large intestine, which was about the size of a goosequill. The ileo-cecal valve was normal, the small intestine distended.

Transplantation of Ovaries.—Walther Schultz (*Monats. für Geb. u. Gyn.*, Bd. xvi., H. 6) had carried out a number of experiments in ovarian transplantation, chiefly in guinea-pigs, but also in mice and rats. He found that in other females of the same species (guinea-pig) transplanted ovaries ovulated and formed corpora lutea. In males of the same species up to the forty-second day ripe ova developed; the same occurred up to the one hundred and seventeenth day. In females of a different species the same appearances were observed up to the eighth day as in ovaries implanted into the same species. These results were observed in fully-developed animals. Herlitzka and Foa have expressed the opinion that successful transplantation could occur only from young and undeveloped animals in whom the ovaries had not acquired an individuality.

Treatment of Gonorrhea in Women with Yeast.—Otto Abraham (*Monats. für Geb. u. Gyn.*, Bd. xvi., H. 6) concludes, as the result of chemical and bacteriological investigations and forty clinical experiments, that yeast can kill gonococci. This action is of a chemical nature and not caused by an enzyme. Sterile yeast has this bactericidal action only when sugar is added; living yeast acts by itself, but its activity is increased by the presence of asparagin. For ease in application by the patient, and to keep the yeast cells alive, the writer makes the yeast and asparagin with gelatin into vaginal suppositories. These caused no disagreeable symptoms and gave good results in the treatment of gonorrheal diseases of the vulva, vagina, and uterus. They affect gonorrheal salpingitis favorably only by preventing repeated infection of the tubes from the uterus.

DISEASES OF CHILDREN.

A Century of Arm-to-Arm Vaccination in Mexico.—Eduardo Liceaga (*Indiana Med. Jour.*, Jan., 1903) upholds the view that vaccination from arm to arm makes people immune against small-pox for life. In proof of this he gives the following facts.

First—In Mexico the inoculations from arm to arm, after having carefully selected a quite unobjectionable vacciniferous child,

have been nearly exclusively employed since 1804 up to the present time.

Second—The preservation of the vaccine virus in the City of Mexico has been entrusted to only five physicians in a whole country.

Third—These men have made a point, the only hobby in their lives, of preserving the original purity of the virus. So far they have succeeded. They did also make another point of performing the operation without deviating in the least from the rules which were seven years before had been laid down by Jenner.

Fourth—The central office in the City of Mexico gathers the lymph from the children who are not under the slightest suspicion of being able to transmit some infectious disease. The children with the gathered virus having been closed by means of a glass alcohol lamp, the official sends them to the capitals of each State, those towns forming now secondary distributing centers, where the same rules we have just spoken of are strictly followed, to, as they are obeyed in the central office. The most frequent care about the choice of candidates for propagation is health. It is the principal duty and care of the vaccinating physician to select strong and healthy children, healthy beyond the risk of the slightest suspicion, are admitted as vacciniferous. The vaccination is performed, as a rule, from arm to arm. If this cannot be done, the vaccination is with some of the most reliable tubes for this purpose, but only while the lymph is in its freshest condition.

Aseptic and antiseptic precautions are taken, of course, everywhere in surgery, the more complete and fastidious the better—borax and boracic acid and absorbent asbestos soaked in pure boiled water. The number of inoculations is not limited to one, but generally three pricks are given on the external face of each one of the arms about the place where the deltoid muscle is attached to the humerus bone. Physicians in charge of children are directed how they shall avoid the danger of any inoculation of the vaccinated place by germs of other diseases, especially those of erysipelas, and the same persons are directed besides about the epoch about which the apparition of the pustules will take place, and of the date of its ripeness, and the obligation they lie under of coming back eight days after the operation in order that the vaccinator may be able to ascertain if the virus is genuine and give to the interested people the usual certificate.

As to the results, first of all, it has been observed that the children vaccinated in this way remain immune during their whole lives. When there is a widespread epidemic and deputy vaccinators are entrusted with the extra work the standing employee cannot be spared, with, and buildings are overcrowded, schools and workshops are searched for non-vaccinated individuals, who, of course, are vaccinated immediately. The epidemic is stopped in its progress. The immunity which vaccination confers upon infants has been served during the whole of their lives. What demonstration could be wished more clear and evident than the one conveyed by the fact that no Mexican physician has ever died of smallpox after he has been a practitioner for thirty or forty years.

same immunity has been observed in male and female nurses who attend smallpox patients. Vaccination succeeded exceptionally well, as has been proved by experiments undertaken on behalf of and under the direction of the Medical Academy of the City of Mexico; revaccinations undertaken by order of the Supreme Board of Health of the Mexican Republic have had the following results: Revaccinations, 1,307; successful, 23.

Convergent Squint.—Eugene Richards Lewis (*Medicine*, Nov., 1902), urging the importance of early treatment in this affection, says that squint is a condition not of one eye, but of *both* eyes, embracing: (1) deviation from the normal parallelism; (2) defect in the faculty of fusion whereby the brain should be able to blend into the consciousness of one picture the impressions received from separate pictures in each eye. To relieve the embarrassment of this defect, which, should it remain in this stage, would render clear vision impossible on account of the confusion of double vision, Nature helps out of the confusion by (3) suppression of the vision of one eye. After a certain length of time, the constant suppression of vision results in (4) amblyopia of that eye, a loss of its power to see clearly. And, finally, in nearly every case of squint we find (5) refractive error, in defect in the perfect focussing of one or both eyes. Emphatically, squint is not a muscular affection, nor is it an affection of the power of focusing the eye, nor is it an affection of the visual power of the eyes. The one essential cause of squint is the inability to accomplish binocular single vision. As to treatment, if, by the end of the sixth or seventh year, no sort of binocular single vision has been established, our first effort should be directed toward recalling into activity the suppressed vision, preventing further amblyopic deterioration and combating the existing amblyopia. This can be done in cases not over 5 or 6 years of age, often with a surprisingly immediate success, by properly enforcing the use of the poorer eye for near vision. We must demonstrate to the unused eye that it really has the ability to see if only it is given an opportunity to do so. To impress upon the eye this consciousness of its own ability, it is necessary to place before it a lens correcting all refractive errors, and then to cripple the visual abilities of the better eye to such an extent as to prevent it from any longer forcing the poorer eye to suppress its vision; in other words, we must bring about a reversal of the old order of things, the result of which reversal shall be that that eye which was formerly the poorer shall have the sharper vision of the two and thus will be allowed to prevail in the struggle for visual supremacy. Mr. Worth, instead of bandaging the good eye, instills a drop of mydriatic solution in the good eye only, once or twice daily. The result of this relief is often evident at once, but it is not a real correction of the difficulty. We must bring about a desire for binocular single vision. Having demonstrated satisfactorily to the unused eye its ability to see if only it is given an opportunity, and then

having given it the most favorable opportunity by placing that eye only a lens correcting any refractive error, the eye soon feels the desire for fusion of the separate images now for the first time coming before both eyes. Having reached the success, there remains only the necessity of pursuing with conscientious perseverance a course of properly selected exercises, and of maintaining a judicious control over the abilities of the better eye. In cases in which stable binocular single vision has been established, glasses can be discarded about the age of puberty, to be worn subsequently for near vision only. If, however, treatment has not been begun until late, though we may still be able to establish binocular single vision, it will be of such unstable character that it will not be able to withstand the strain of uncorrected refractive error.

Diphtheria and Antitoxin.—Charles C. Partridge (*Gyn. and Ped.*, Jan., 1903) says that the concurrent opinion of the profession at large now admits that laryngeal stenosis is produced by some foreign body (non-membranous) or intussusception or obstruction from growths in adjacent structures, such as enlarged glands, malignant growths, etc., about the neck in diphtheria. The rule then to govern us in such cases is to give the antitoxin order of treatment from the start, when one has a case of laryngeal obstruction coming on suddenly in the course of diphtheria. The earlier antitoxin can be given in a simple non-laryngeal case of diphtheria the better. And should laryngeal stenosis develop itself, the proper thing to do is to double the quantity or frequency required in a plain case of diphtheria—every four to six hours in a child, say, 5 or 6 years of age, and even in an adult child—in a desperate case, until there is brought about a permanent opening of the stenosis, *and not to stop until then*. We should not fear giving too much antitoxin, but rather give an extra quantity in a case that does not seem to give way to what has already been freely prescribed. The writer emphasizes the fact that too much antitoxin is used, and this at too infrequent intervals.

Diseases of the Cornea in Children.—C. Devereux Moore (*The Practitioner*, Jan., 1903) treating of the common disease known as phlyctenular ophthalmia, says that it usually occurs in a child who is insufficiently or improperly fed and who lives in unhygienic surroundings. Sometimes the ulcers heal spontaneously, but often it spreads to the cornea and leaves a permanent opacity behind, or it may even go to the extent of causing perforation. Actual blindness may not be induced, but the sight may be rendered so defective that numerous occupations are denied to the sufferer. For the successful treatment of the condition one must study and be acquainted with the morbid processes which accompany it. That it is of an eczematous nature few will deny, and is the drug most commonly prescribed for these children. The author is convinced that this treatment frequently fails, the condition being much prolonged. It is useful enough in the later periods, but the earlier stages are better treated with

doses of mercury internally. The author uses gray powder, two grains; powdered belladonna leaves, one grain; and sugar of milk, two grains, giving half a powder twice a day. In addition, atropine is essential, and he prefers drops of a solution containing three grains to the ounce. The eye should be bathed frequently with boracic lotion. For the cure of the photophobia, setons are barbarous, blisters useless. One of the chief causes of the continuation of the photophobia is the development of fissures and excoriations at the outer canthi. If these fissures be stretched and made to bleed on the child opening his eyes, much good is likely to accrue. The best treatment is to give an anesthetic, and then to stretch the lids as widely open as possible; this will cause bleeding, but after it has ceased the lesions will heal. In order to make more certain of this result, the fissures may be painted with a solution of nitrate of silver (five to ten grains to the ounce) and at the same time the lids and any phlyctenular ulcers present may also be painted. Atropine should then be put in, and no bandage of any sort applied. Cocaine should not be given to patients to use, as they will apply it far too frequently, and may so destroy the epithelium and favor perforation.

Eye Disorders in Children Influenced by Malnutrition, Diathesis, and Dyscrasia.—A. C. Cotton (*Chicago Med. Recorder*, Jan. 15, 1903), beginning with ophthalmia neonatorum, says that while the same detail in treatment is not applicable in all cases, two general principles must be observed, *i.e.*, to cleanse by irrigation the conjunctival sac from purulent accumulations as frequently as the individual case may require, and the maintenance of hygiene, inclusive of rest and nutrition. Phlyctenular affections belong distinctively to the periods of late infancy and early childhood. This is one of the local manifestations of a strumous diathesis. The facts that it is rarely seen except in strumous children, that it does not yield to other than hygienic treatment, and that no etiologic micro-organism has been isolated, establish its claim as a disease of malnutrition pure and simple. The pain, irritability, and the marked photophobia indicated by the hanging head, avoidance of light and disinclination to play, always should arouse suspicion and lead to an examination of the cornea for ulcers. Closely allied to the phlyctenular affections is the conjunctivitis following the eruptive fevers of childhood. These require the securing of cleanliness of the conjunctiva and adjacent lids, and the use of occasional drop doses of solution of atropine (one grain to the ounce) and daily application of yellow oxide of mercury (one grain to ounce of vaseline). The croupous and the diphtheritic types of conjunctivitis require prompt constitutional treatment. The first is rarely seen except as an accompaniment of depraved constitutional conditions. It appears as a superficial film upon the conjunctiva of the lid. It is sometimes excited by escharotic astringents in the treatment of catarrhal and purulent conjunctivitis. The treatment should be locally palliative and constitutionally nutritive and hygienic. It is of extreme impor-

tance that differentiation should be made between this infection and true diphtheritic ophthalmia, as the latter, if not treated, causes rapid destruction of sight. Here the exudate is found upon the globe as well as upon the lids, is not so readily detachable, and involves the subconjunctival tissues. That it may appear as the only diphtheritic lesion should not be forgotten, though, no doubt, it may invade the conjunctiva by way of the lachrymal duct in diphtheritic rhinitis. In doubtful cases bacteriologic examination will clear the diagnosis. The use of diphtheria antitoxin is usually followed by disappearance of the membrane. Supporting constitutional treatment must be the same as in any other form of diphtheria. Weakness of atropine and boric acid may be used until the oculist is summoned. Of the other dyscrasias upon which serious eye diseases are dependent, syphilis is the most common. The physician treating diseases of children must easily recognize the first evidence of haziness of the cornea, for which his previous knowledge of family history should have prepared him. In the absence of knowledge there will probably be indications of syphilis in the child. The author, in conclusion, calls attention to the possibility of serious injury to the ocular apparatus during the period of lowered nutrition attendant upon or following acute or chronic disorders of the developing period. The physician who neglects the care of his charge upon the subsidence of pyrexia at the return to normal digestion, evades a responsibility for the ophthalmic future of his little patient for which he should be held blameless.

Fetal Bone Diseases.—J. W. Ballantyne (*Brit. Med. J.*, Sept. 27, 1902) says that the morbid states of the fetal skeleton afford a very good example of the two phases through which all organs and parts of the body pass in antenatal life. There is a phase of development or structural elaboration and a phase of growth with functional activity, or, in other words, the embryonic and the fetal stages. When morbid causes act upon the skeleton in the embryonic or formative phase, the result of their action will be the production of malformations; when they are effective in the later or fetal stage, disease will be produced. The peculiarity of the unborn infant is peculiar in the fact that it remains long in the embryonic stage, that there is no clearly marked time when it can be said that the skeleton has passed out of the formative into the fetal phase. Ossification, which is the final stage in the developmental history of the skeleton, begins in some bones, for example the clavicle, in the seventh week of antenatal life, but in several bones it is not completed till birth, and even later. Part of the skeleton, therefore, may be in the fetal stage while another part is in the embryonic stage of its development. Herein lies the cause of much of the confusion which surrounds the subject of the fetal bone diseases; they are partly diseases and partly malformations; they are teratological diseases and not diseases, say. Most malformations are due to arrests of development.

formative process coming to a stop although growth goes on; and many of the fetal bone diseases are no exception to this statement. The arrest may conceivably take place at any stage in the evolution of bone—in the membranous, in the cartilaginous, or in the osseous. In anencephaly there is an arrest of the membranous formation of the cranial vault bones; no one thinks of calling anencephaly a fetal bone disease, it is so evidently a malformation; but, nevertheless, it is an arrest in the formation of the skeleton. In achondroplasia there is again an arrest, in this instance in the much later stage when ossification is taking place in the vicinity of cartilage, but many pathologists call this a fetal bone disease; it also is a malformation, but one developed much later in ontogeny, just as ossification in cartilage appears later in phylogeny than ossification in membrane. *Rickets*.—It is evident that if the causes which produce rachitic changes in bones in later life are active in early fetal life, they will not then produce the same changes (macroscopic or microscopic), for the bones have not been formed to the required degree. It is conceivable that they will produce other changes, and it is a fair working hypothesis that they will lead to malformations of the skeleton. Some of the so-called fetal bone diseases, then, may be truly rachitic in the sense that they are produced by the causes of rickets while they are histologically not rickets. The cause may be the same, but the effects may differ, the difference being due to the state of development of the part acted upon by the cause. Mothers whose general health is such that we should be justified in expecting them to give birth to rachitic infants, often do no such thing, and apparently perfectly healthy mothers give birth to fetuses with the signs of achondroplasia, etc. These apparent anomalies in disease production are to be explained by the placental factor in antenatal pathology. The mother's body is the atmosphere or biosphere in which the fetus lives, but it is through the placenta that changes in this biosphere react upon the fetal tissues. The placenta may so protect the fetus that it becomes the preferred part, as it were, of the two linked organisms (maternal and fetal) and is nourished perhaps even at the expense of the other parts. On the other hand, where perhaps all else is healthy the placenta may be defective, and then the fetus is not supplied with all the materials it needs, and its growth and development are interfered with. With regard to the nature of the morbid cause which produces infantile rickets, we are still in doubt, but it may quite conceivably be toxic, and, if so, there is no inherent improbability that it may act upon the fetus *in utero* through the placenta. The fact that Charrin and Gley have succeeded in producing a condition in fetal rabbits resembling rickets by submitting the parent animals to the influence of the toxins of the bacilli of diphtheria, tubercle, and blue pus, is very striking.

W. Stoeltzner (*ibid.*) thinks that the question of rickets or not rickets can only be decided by a histological examination. In other words, a given bone lesion cannot be said to be due to

rickets from a clinical examination alone, or from the scopical examination of the bones at the necropsy; a histological examination must be made. The theoretical possibility that rickets may take place during fetal life must be admitted. As far as the author knows, no single case has been recorded. It can certainly be stated to have been true fetal rickets.

A. Baginsky (ibid.) holds that one can easily distinguish scorbutic changes in the bones from the rickety, and that these diseases may coexist in the same child without having an intimate connection with each other. The clinical picture of the two affections may admittedly approach more closely if multiple hemorrhages are present and visible hemorrhages are wanting. But the general condition of the child will decide the choice of the one or the other diagnosis.

Jules Comby (ibid.) doubts whether intrauterine rickets exists at all. Fractures may exist in great number in a fetus, yet may not be due to rickets. Besides the traumatism of pregnancy there is a special fragility of the bones, osteoporosis, osteopetrosis, psathyrosis, which explains the majority of these fractures. Further, this fragilitas ossium may be continued after birth. In another category of facts we find achondroplasia, which was formerly confused with rickets. The author reports an interesting example. He holds that when one keeps before the chief features of this singular disease, of this chondrodysplasia fetalis, one will no longer confound it with rickets. The number of cases of fetal rickets will be reduced to a negligible quantity.

Foreign Body Successfully Removed from the Bronchus of a Child.—A. V. L. Brokaw (*St. Louis Medical Journal*, Oct. 25, 1902) describes the case of a child who "swallowed a tack. Hoarseness, heavy breathing, and a rattling sound in the throat were heard for several days thereafter, but these symptoms disappeared after a severe attack of coughing. Paroxysms of coughing remained. When seen twenty days after the attack the child was in a poor physical condition, had a constant varying elevation of temperature and marked loss of weight. By the use of the X-ray the tack was found to be situated in the right bronchus. Under a general anesthetic a low tracheotomy was done, but the child became cyanotic and the operation was abandoned for a time. Five days later the tracheal wound was reopened and the trachea thoroughly cocaineized and swabbed with a solution of adrenalin. A powerful electro-magnet was introduced through the tracheal wound and carried down into the right bronchus, in an effort to find and withdraw the tack. Although the tack was felt with the magnet, it was too firmly embedded to be withdrawn by that means. A large endotracheal tube was introduced, but the tack could not be seen on inspection of the accumulation of mucus. A pair of flexible laryngeal forceps was inserted through the endoscopic tube and the tack was felt and grasped. It was so firmly embedded that severe

hold of the forceps was broken, and the head of the tack being larger than the lumen of the tube through which the surgeon was working, it was necessary, when at length a firm hold of the tack was secured, to withdraw the tube and forceps simultaneously. Considerable hemorrhage followed. A tracheotomy tube was introduced and the child put to bed. Recovery was uneventful. The author calls attention to the great value of the X-ray in this case.

Pertussis.—A. F. Voelcker (*The Clin. Jour.*, Nov. 5, 1902) says that from the results of treatment by a variety of drugs, he says that he cannot claim to have discovered or even confirmed the existence of any drug which could be called a specific for the disease. Antipyrin, belladonna, and citrophen have given, on the whole, the most satisfactory results, though none of them has proved sufficiently beneficial to entitle it to exclusive use. Creosote and carbolic acid are useful where there is much gastric and intestinal trouble. Heroin certainly relieves the paroxysms of coughing. During convalescence nothing has proved so useful as cod-liver oil and steel wine.

Round Shoulders and Faulty Attitude.—Robert W. Lovett (*Boston Med. and Surg. Jour.*, Nov. 6, 1902) concludes, from a thorough study of the subject, that heretofore the study of faulty attitude has been incomplete because the spine alone has been considered rather than the relation of the legs and pelvis to the spine, and the relation of the whole body to the perpendicular; that a uniform method of measurement and record is desirable; that the method described gives a side elevation of the whole attitude and relation of legs, thighs, pelvis, spine, and head to each other and to the perpendicular; that the seat of faulty attitude is not as yet formulated; that gymnastic treatment should be general and local.

Substitute Infant Feeding.—Carlyle Pope (*Cleveland Med. Jour.*, July, 1902) compares cow's milk with human in regard to fats, sugar, proteids, salts, reaction, sterility, and biologic differences. These facts, he says, all help us in realizing what profound influences have been at work in determining the character of milk. And when we try by modifying one milk to imitate another, we may be sure that our task is not a simple one. We see the possibilities of modifying cow's milk so that it will more nearly correspond with human milk. At the same time we are inclined to believe that a great amount of manipulation does in some way injure it, and it is conceivable that while we are using our energies to render cow's milk like human milk, we are all the time rendering it more unlike by interfering with some property which we do not understand. This seems to be the conclusion reached by some of the German clinicians, for, after making use of a great variety of more or less complicated milk-modifications, they have fallen back to the use of milk or cream simply diluted, with the addition of milk sugar, without attempting to get a great variety of formulas. Notwithstanding all the differences which

we recognize between cow's milk and human milk, the fact nevertheless remains that most infants do remarkably well on cow's milk when it is prescribed with care. The danger of artificial feeding is in proportion to the age of the child—the older the child the greater the danger. Infants nursed at the breast for the first two months, let us say, can usually be put on artificial milk with safety. On the other hand, when infants are given a substitute food from the start, it is the universal experience that their progress is much less satisfactory. Therefore a distinct advantage to give an infant a start at the breast is only for the first few weeks, or even the first few days.

Strabismus in Children.—Samuel Theobald (*Maryland Jour.*, Sept., 1902) says that he believes that, oftener than is commonly supposed, it is possible after operating for convergent strabismus to avoid the constant and continued use of glasses. The method which he has employed is as follows: A moderate amount of muscle-cutting, usually a tenotomy of the rectus of the squinting eye, which commonly leaves a residual squint; the correction of this residual squint and the development of binocular vision by the careful adjustment of prisms being not infrequently combined with the use of a sphero-cylindrical correction in order to encourage binocular vision; and finally, after binocular vision has been firmly established through a period of several months, the gradual withdrawal of the assistance afforded by the glasses, until the glasses are put aside altogether, or, at most, are worn only for near vision. In modifying the glasses, the prisms are reduced in strength, then withdrawn, then a gradual reduction of the spherical correction is made, until finally nothing remains. The rapidity with which these changes can be effected varies in different cases, and after each change one should warn himself that binocular fixation is still maintained. The recurrence of the squint or the development of asthenopic symptoms would be an indication that the help afforded by the glasses is being too rapidly withdrawn. The conditions which are against the success of the method are the existence of a high grade of hypermetropia, a very considerable amount of astigmatism, decided anisometropia, marked amblyopia in the squinting eye, and, above all, that pronounced indisposition to binocular vision which exists in some strabismic individuals, the presence of which one may congratulate himself if a satisfactory result is secured even with the aid of carefully selected constantly-worn glasses.

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ORIGINAL COMMUNICATIONS.

WHAT IS ECLAMPSIA?

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THE theories advanced in explanation of the occurrence of eclampsia are various. Pressure on the ureters, kinking of the ureters and increased intra-abdominal pressure, were supposed to be factors which prevented a sufficient excretion of urine. They suggested more or less the probability that interference with the excretion of urine or with constituents of the urine accumulated in the maternal circulation. The finding of albumen in most cases of eclampsia added weight to the belief that uremia lay at the foundation of this affection. The Traube-Rosenstein theory is to the effect that the hydremic state of the blood in pregnancy plus the hypertrophied heart of pregnancy produced, as a result of increased tension in the vessels, edema of the brain with consequent anemia and convulsions. Others believed that the substance in the blood was the cause of the cerebral anemia though its toxic effect in causing a contraction of the cerebral vessels.

An attempt to refer the etiology to reflex irritation acting on the sensitive brain-centers is made by some. As a matter of fact, the experiments of Zuntz and Blumreich on rabbits, as well as clinical

observation, prove the brain of pregnant animals and in to be over-sensitive to irritations of a local or constitutional and to stimuli of a normal or artificial character. This, is only part and parcel of the increased hyperemia and ness of almost all parts of the pregnant body. It is n that intestinal putrefaction often predisposes epileptics to and that the prevention of this condition diminishes the of the attacks. Therefore, on an allied theory, intestinal ation is another cause brought into discussion. As a fact, intestinal disorders are probably only elements wh the patient more sensitive to the real etiological factor.

Later views tend to place the burden on the fetus (but almost all authorities unite in giving to retained pr the fetus or of the mother or both, the blame for this . The name "toxemia" is thus quite generally adopted, a product of proteid origin is believed to be the noxious s

In further pursuit of the origin of the toxins, bact been brought into play and a localized or diffuse endome to non-virulent bacteria, supposedly produces, as a result lative action, the poisons which call forth the eclamptic The fact that temperature often accompanies eclampsia, i forward as a further proof of a local or a constitutional infection.

Goedecke reported that in 400 cases of eclampsia 75 were primiparæ, 5 per cent. were cases of plural fetation the usual proportion of twin pregnancies to single is 1 cent. Only 2 per cent. were affected for the second tim ma was present (this could not be accurately determ nearly one-third of the cases. In 20 per cent. it began v four weeks preceding the attack. In 96 per cent. of the albumen was found. The percentage of cases without varies among various observers from 3 to 20 per cent. tality is higher in those cases without albumen than in t albumen, which might permit of a division into the acute sub-acute or chronic forms of eclampsia. This fact and ing amounts of albumen and casts, make albumen in it phases useless as regards prognosis. The period at v eclampsia occurred was judged from the weight of the which, we believe, is not a fair test, as in this condition n dren are probably relatively smaller than usual. However from the weight of the children in 306 cases of eclamps curred in the 5-6 month, 39 in the 6-7 month, 53 in the 7

85 in the 8-9 month, 38 in the 9-10, and 77 at full term. He observes that a great rise in temperature and icterus are bad prognostic signs. Seven died after 1-5 attacks, 17 after 6-10 attacks, 13 after 11-15 seizures, 9 after 16-20 seizures, 7 after 21-25 attacks, and 4 after 26-35.

The characteristic of eclampsia in the vast majority of cases is recognized to be the convulsive seizures. The severer the disease the more severe and the more frequent are the attacks. By some these are considered to be the important factor in the disease, by others they are viewed only as a symptom. We know the efficacy of treatment, of normal or artificial delivery, of chloral hydrate, and of opium, etc. Were the attacks of little importance, treatment of this sort would be of little value, for in spite of these means the toxic substance is still in the blood, producing all the evils, eventually causing death in many cases. Is the disease, then, so severe as to endanger the life of the patient, the stopping of convulsive attacks would be theoretically unimportant. Is the seizure of a lighter nature, then treatment is certainly, theoretically, of little importance. Cases differ in character, and an important factor in prognosis is the pulse. Its character and rapidity are of diagnostic value. Were we to attribute the saving of life to the drugs employed an error would be made, for many of the cases would probably recover without treatment, especially after delivery. Other cases are fatal in spite of all treatment. A large proportion, however, depend upon the treatment, and the resulting tendency to diminish the frequency and severity of the attacks, for results which are of the greatest importance. Though the attacks are symptoms, they are important integral parts of the disease and play a decided role in bringing a case to a fatal termination. The strain upon the heart, the interference with respiration, and the increased cerebral tension during seizures, are certainly apparent and a resulting edema of the lungs is frequent.

Blumreich and Zuntz considered the etiological possibilities to be: (1) There is a toxic irritation of the central nervous system. (2) The central nervous system is in a condition of extreme irritability. (3) Both. In pursuit of a decision on these questions they experimented on rabbits. Since the cramps in eclampsia cover a large motor area of the body, the affected points are the brain centers. Therefore, they removed the bone and dura mater under an anesthesia, and placed keratin in varying amounts upon the cerebral cortex until they produced clonic tonic attacks. They produced convulsions IN ALL GRAVID ANIMALS, but in only 2-3 of

the non-gravid. It took, however, ONLY 1-3 AS MUCH to obtain the result in the gravid cases as in the non-gravid. He also injected keratin solution in concentrated form into the internal carotid of rabbits and obtained the same general result.

The central nervous system in pregnancy is in a condition of extreme irritability.

Onanism must be reckoned among the factors which will dispose to increased irritability of the nervous centers. He found that all of 30 cases of amenorrhœa confessed to masturbation. Sixteen were married, and of these eight had borne children. The duration of the amenorrhœa varied from three months to several years. The symptoms were headache, nausea, vomiting and sleeplessness. The tendency to masturbation was especially strong at the time for menstruation. Further, by the observation of Fleiss, he noted that many disturbances of the menstrual function, especially dysmenorrhœa, are associated with circumscribed swellings of certain nasal areas, namely the anterior end of the lower turbinated bone and the direct site area of the nasal septum. He found that this was caused by strong sexual excitement unaccompanied by the relief from physiological completion of this state. For the treatment of amenorrhœa, the stopping of the masturbation is a necessary factor. He also observed that menorrhagia was often due to masturbation and to disturbances of a sexual character. Sixteen women with menorrhagia and metrorrhagia, acknowledged masturbation and sexual processes (especially interference with natural coitus) due to a desire to prevent conception. The symptoms were relieved with the regulation of the sexual relation. These disturbances resulting through masturbation in the non-gravid, open the question as to the possibility of evil results in the pregnant. He observed that unconscious eclamptics often practiced onanism. He found in these eclamptics nasal swellings and enlargement of the left thyroid lobe. He questioned 20 women who recovered from eclampsia and 19 confessed to onanism in pregnancy. The tendency to masturbate was observed in those who practised onanism before marriage as well as in those who had not made use of it before.

In the opinion of some masturbation does not act injuriously through mechanical irritation, but does act injuriously psychically. It may be said, however, that masturbation does produce a condition which is not relieved and regulated by the omitted coitus. How are the anomalies of menstruation, masturbation, and

disturbances related? If masturbation produces amenorrhœa or disturbances of menstruation, we may infer a consequent interference with ovarian secretion and its elimination. If we grant that masturbation has an effect on menstruation, we may safely add psychic phenomena to the list of resulting evils. On the other hand, it may be asked whether masturbation is entirely a cause or a symptom, and whether onanism and amenorrhœa are not often evidences of defective ovarian action and secretion. At any rate,, we may grant that increased irritability is an accompaniment of onanism. More especially would this be true in the case of the pregnant woman.

Müller observes that in eclampsia there is a rise in temperature, which increases with the frequency and intensity of the attacks and sinks between the same. He observes that pregnancy does not increase the seizures in epileptics, but sometimes exerts a beneficial influence. He further notes that epileptics are not especially liable to eclampsia. For him the three cardinal symptoms of eclampsia are, (1) the temperature, (2) the kidney disturbances, and (3) the nervous phenomena. He explains all on the theory of resorption fever. The affection is localized in the uterus. The poison is due to bacteria acting on uterine substances capable of decomposition and their subsequent absorption through the circulation. When the amounts absorbed are great, eclampsia results. As proof he cites the beneficial effect of intrauterine death of the fetus, explaining the good result by the diminution of intrauterine pressure and the consequently diminished absorption of uterine toxins. The frequency in primipara is thus due to the great intrauterine pressure caused by the resistance of the well-preserved and never-stretched uterine muscle. The affection of the kidneys he calls a toxic nephritis.

Stroganoff believes eclampsia to be an infectious disease in which the contagium enters the circulation through the lungs. The incubation time is short, from 5 to 20 hours. Because of its infectious nature it occurs especially in lying-in hospitals. It affects particularly primiparæ, women pregnant with twins—and patients with affected kidneys. Eclampsia, to him, is a constitutional and not a local disease and is independent of lesions of the kidneys. It is an acute affection with very short, if any, prodromal symptoms. It is a disease accompanied by fever. Some years it runs a light course; in other years it takes a severe form. (*Genius epidemicus*.) The increase of eclampsia in recent years is explained through the over-crowding in lying-in hospitals. It

occurs more rarely in private houses. He finds second and third cases following closely a first case in a hospital, or else the contagion is carried thither from another case outside by a physician or nurse or vice-versa. He has frequently observed this contagion.

The diminution of the attacks is important, because the attacks are injurious on the heart, brain, lungs, and kidney. He believes in oxygen, morphine, chloral, and rapid delivery. The mouth and nose are kept clean and no pressure on the thorax is permitted. Frequent change of position is used to ward off edema of the lungs. Enemata of saline solutions or milk have worked well. With this method forty-five consecutive cases have been treated without death, and up to March, 1901, the number rose to 100.

Eclampsia, however, is a disease characterized by a *pathological lesion-complex, simulated by no other known disease*. Only recently Schmorl published three fatal cases of eclampsia ending in coma and edema of the lungs. Autopsy revealed the typical pathological lesions of eclampsia, but seizures had not been taken place. Schmorl, though prejudiced by his views on eclampsia, influenced by a tendency to exclude from the category of eclampsia cases without typical pathological lesions and to include in this category those cases without seizures, has given us through his investigation of many years a definite picture of the local pathological lesions.

Among the changes are:

(1) Kidneys. Parenchymatous degeneration, glomerular thrombi.

(2) Liver; multiple hemorrhages and necroses. Hemorrhages and anemic necroses of the liver with thrombi in the interlobular branches of the portal vein.

(3) Heart. Hypertrophy of the left ventricle, multiple hemorrhages and necroses and parenchymatous degeneration.

(4) Lung. Hyperemia and edema of the lungs. Numerous thrombosed capillaries and veins in the lung. Numerous tal-cell emboli.

(5) Brain. Punctuate hemorrhages in the brain with degeneration near the thrombosed vessels.

(6) Pancreas and Adrenals. Hemorrhages and necroses.

The presence of bile pigment in the blood of eclamptic women is rare.

Dienst has reviewed the fact that not alone are lesions present in the organs of the mother, but *parallel lesions are noted in a proportion of the infants*.

(1) Thromboses are noted in the arterial and venous system and in the capillaries. The interesting question is, whether these thrombi originate at the site found, or whether they are embolic. According to Dienst, they are primary and are found in the kidney, liver, lungs, etc. They are typical mixed and hyaline thrombi. The amount of fibrin in the child's blood in eclamptics is found to be increased above normal. It is due, according to Dienst, to products of regressive metamorphosis of the albuminates. Kollman says that the globulins are responsible for the maternal eclampsia.

(2) Parenchymatous degeneration is noted. There is albuminous cloudiness, fatty degeneration and necroses, especially in the liver and in the kidney. While the degeneration is possibly the result of thrombosis, yet Dienst finds necrotic areas without thrombosis. There is, according to Dienst, in the blood a fibrin-forming ferment which produces the lesions classed under (1) and (2).

The kidney in utero scarcely functionates, and the products of tissue change are not excreted by the fetus, because the secretory apparatus of the fetus is not important before birth. Therefore, the kidneys are often healthy, but the injuries develop and become evident *after birth* when the kidney begins to functionate and excrete the toxins. In several cases of eclamptic infants he found albumen and hemalbumen and casts in the urine. He finds the *amount of fibrin in the blood to be increased in all eclamptic mothers and infants*. Eclampsia has been noted in children as late as 36 hours after birth.

Thus the cause is referred by Dienst to the fetus, because after the removal of the fetus the maternal attacks often cease. When the fetus dies albuminuria in the mother ceases, which fact, according to Dienst, is another proof of his theory. (How, then, does he explain eclampsia in the mother occurring first after labor.) The kidney affection of the mother is, in his opinion, an affection *due to products given off by the fetus* or is an increase of an existing affection produced by these products given off by the fetus. These poisons remain in the maternal blood because excretion is interfered with through the injurious action of the toxins on the kidneys. For that reason they are likewise retained in the fetus. These products affect the kidney and liver of the mother. Dienst, in explaining the cases without albumen and casts, believes that in an apparently normal kidney congestion is sufficient to prevent the excretion of these toxins. In addition, the heart lesions produced in the mother by this fibrin-forming

product of faulty albuminous metabolism in the fetus and other factor which prevents sufficient elimination by the mother. The maternal liver-lesions also furnish evidence of defective albumin metabolism and are the result of the toxins absorbed by the fetus.

Attention was called to the keratin experiments of Blumreich and Zuntz. Blumreich, to further the result of these experiments, resected the kidneys of animals gravid and non-gravid. 70 hours convulsions resulted like those produced by the injection of keratin into the internal carotid, but there was *no difference in the period of time needed to accomplish the result in the gravid and non-gravid animals*. Judging, then, from these experiments, there is a somewhat specific sensitivity to various irritations in the brain of the gravid animal. To the poisons producing convulsions, to which the brain of the non-gravid, however, is NOT more sensitive than the brain of the non-gravid animal. *To these poisons belongs the sum total of uremic intoxications*. He thus fortifies Schmorl's statement that eclampsia is uremia.

Since, however, the brain of gravid animals is more sensitive to convulsive-producing drugs than non-gravid animals, the sensitiveness is present in the case of the eclamptic poisons. To find this poison or toxin is to find what products of the blood in the urine, or central nervous system of eclamptics act *gravid* either in gravid animals only or else much more so or in a higher degree in them than in the non-gravid (Blumreich).

To what conclusion do the changes described by Schmorl lead? That they are not the result of sepsis seems probable for the reason that bacteriological tests are negative.

Uremia may be excluded for the following reasons: there is no albumen or casts, or else very little, or else only present for a short time. In uremia, liver necroses appear only when there are uremic dysenteric changes in the large intestine, which then produce embolic processes mostly of bacterial origin. In uremia the other changes noted above are absent. (Schmorl.) The kidney in eclampsia is not an inflammatory but a degenerative one and the changes affect the renal parenchyma, especially the epithelium of the twisted tubules which shows then cloudy and fatty degeneration with occasional local necroses, but these changes are often very slight and may be called the cause of eclampsia. Besides, they may be absent, *but the other organic lesions are present*.

The liver changes in eclampsia differ from those found with septic and infectious diseases. They are not the result of kidney changes, *because they are present when the kidney is normal*. They are not due to convulsions, because lesions just like them are not found with any other convulsive affections or in delirium tremens. The lesions differ from such liver hemorrhages and from the changes found sometimes in chorea, epilepsy, the status epilepticus, etc. Parenchymatous-cell emboli from the liver, placenta, bone-marrow, etc., are found in eclampsia, but this condition may also be noted in non-eclamptic pregnant women. (Schmorl.)

In eclampsia we have, according to Schmorl: (1) Multiple hemorrhagic and anemic necroses of the liver. (2) Decided parenchymatous degeneration, necroses, and hemorrhages in the heart. (3) Multiple areas of softening and hemorrhages in the brain. (4) Multiple thrombi in various internal organs.

The liver changes are never absent, the lung changes are almost always present, the brain-lesions are found a little less often, the heart lesions still a little less regularly and least constant are the lesions in the adrenals, pancreas, and intestines. These changes, however, in the various organs are coördinated in that all are due to the same cause. (Schmorl.) *What is this cause?*

The source of the substance in the blood which produces these lesions is to be sought in some structure of the patient herself or in some element of the ovum. In the latter we need to consider the *placenta* and the *fetus*; in the former we may consider that organ, the excretion of whose substance is interfered with by pregnancy, namely, the *ovary*. In those patients with nausea and vomiting in the early weeks of pregnancy, whose urine I was enabled to examine with sufficient frequency, I have rarely failed to find albumen, and I have always believed that this nausea was not reflex. In this connection I may say that I believe its etiology to be the same as that of the albuminuria of pregnancy and of eclampsia. Whatever the substance may be which primarily or secondarily causes eclampsia it is probably the same substance which produces the albuminuria, the nausea, and the kidney of pregnancy, and if approximately 10 per cent. of eclampsias are observed without the presence of albumen and if in another proportion the albumen first appears during or after the attack, we may consider the possibility of (1) a slow, gradual *accumulation* of this toxic substance in explanation of the one form, and (2) a *sudden manifestation* of its presence in the other form. If, in

addition, such a large proportion of cases are so *intimately connected with the process of labor itself*, it is necessary to place this phase of the question in important consideration. Just why the process of decomposition in the metabolism of the fetus should be connected with the power to produce the preliminary and final lesions is a question I do not understand. The secretions of the various organs of the fetus are, too, of the same nature as the secretions of these same organs in the mother, and if a pathological change in any of these organs is the responsible factor, it is, to say the least, very strange that in women not pregnant such lesions and symptoms should not also occur. To credit the increased amount of metabolic changes with the causation of this disease, because of the presence of growing ovum puts increased work upon the kidneys is not satisfactory, because on surgical removal of the kidney the other carries on the increased proportion of work without the production of such symptoms and lesions as are observed in eclampsia. Besides, the increased work of elimination required by the presence of the fetus is very slight. Theory and experiment exclude uremia as a primary factor, in my opinion. Graafian follicle diminished excretion of urea to be present, that is surely a consequence of pregnancy and of the kidney lesions, and not the primary cause of the changes found in eclampsia. The two factors then remaining are the placenta and the secretions of the maternal organ, probably the ovary.

The ovum escapes from the Graafian follicle through the wall of the folliculi, probably through *chemical action* of the liquor folliculi, or of the ovum.

The ovum in the guinea-pig is embedded, by centrifugal force, through the epithelium, in the connective tissue as a result of *bio-chemical action* of the ovum.

In the guinea-pig the ovum digests the tissue about it, and is enveloped by fluid as a result of the *bio-chemical influence* of the ovum.

In the human being the ovum is embedded by centrifugal force, and produces a *reaction* resulting in localized edema of the tissue about the ovum.

The external ectoblastic layer of the ovum develops into the chorionic blast which *invades and destroys* the decidua and opens the maternal arteries. The villi invade the maternal tissue and open the maternal blood-vessels. Therefore,

1. *These processes furnish evidence of a bio-chemical action on the part of the ovum and its trophoblast cells.*

The trophoblast cells pass into the circulation and are dissolved and produce no injurious effect. From the earliest moment these fetal cells are continually entering the blood of the mother, not only in the early stages through the primary intervillous space, but also through the vessels of the later decidua serotina. Therefore,

2. *These constitute and furnish a placental secretion.*

When the maternal blood makes its exit from the capillaries it circulates against the fetal trophoblast cells without coagulation. The blood has a corrosive action on these cells and changes them to syncytium. This syncytium plays the role of endothelium and protects the underlying cells from the action of the blood. Therefore,

3. *There is evidenced an antagonistic action on the part of the maternal blood.*

The depth of the invasion on the part of the trophoblast cells and villi is controlled by the decidua to a certain extent. The decidua is gradually destroyed and invaded by the trophoblast cells and by the villi. Therefore,

4. *There is thus furnished evidence of an antagonistic action on the part of the decidua and the maternal blood. We may grant, then, to the maternal blood the possession of an element or enzyme which limits and opposes the growth of the trophoblast cells and controls the action of the trophoblast cells and their enzymes.*

In hydatid mole there is a macroscopic invasion of the uterine wall by the syncytium and the villi.

In chorioma there is a macroscopic and microscopic invasion of the uterine wall by trophoblast cells and by syncytial cells. Therefore,

5. *These are pathological local evidences of a lack of sufficient antagonistic resistance to the fetal cells and enzymes by the maternal cells enzymes.* Therefore, the maternal enzymes cannot hold the action of the fetal cells in check.

6. The lesions of eclampsia are an evidence of the same factors except that instead of being a local, it is a constitutional pathological malrelation between fetal and maternal enzymes.

Fifty per cent. of the cases of chorioma follow the presence of hydatid mole. The local lesions in chorioma are due to the same invasion by fetal cells as takes place in normal placentation, except that the growth is *unlimited and not held in check*. The fetal cells invade capillaries and vessels and produce bleeding. They

produce areas of degeneration and necrosis accompanied by the presence of much fibrin. When carried off into the circulation they produce malignant metastases. If a like pathological process can be granted to the secretion of the placenta as is here evidenced by the cells, we could expect the resulting microscopical thrombi, degeneration, and necroses in the heart, brain, liver, kidneys, lungs, etc., which Schmorl has shown to be typical of eclampsia.

Why is it probable that the ovary furnishes to the mother the normal elements or enzymes which oppose and antagonize the growth of the fetal cells and the action of the placental enzymes? We do not know the value of the ovaries in maintaining the nutrition of the female genitalia. It is an almost assured fact that certain forms of obesity, that osteomalacia and chlorosis are intimately connected with disturbances in the secretory function of the ovaries. The intimate relation of ovarian secretion to the genitalia makes it probable that the organs the retention of whose secretion in pregnancy is of great value, through its action on the uterus and breasts and through its opposition to the local and constitutional action of trophoblastic cells and secretion.

We know the influence of the ovary and the value of its secretion. We know the effect of its removal on the physical and psychological characters of the female. We know, as yet, very little of a positive nature as regards its influence from the standpoint of pathological secretion. In my opinion, this factor plays an important part in producing many of the peculiarities and abnormal states observed in the female sex. That the removal of the ovaries does not cure the cases promiscuously included in this category is granted. However, neither does removal supply the normal elements of which the patient stands in need. There are even cases correctly included in this category present complications in which other organs and elements are involved. For instance, the thyroid gland and the ovary have opposite effects in several ways. Most particularly, it may be said that thyroid secretion produces pelvic genital anemia, while ovarian secretion produces pelvic genital hyperemia, and these two secretions therefore, an antagonistic relation.

To say that the retention of normal ovarian secretion produces the above abnormal symptoms might be untenable. What changes are normally produced by this secretion during pregnancy we cannot surmise. What pathological changes may take place or be continued as a result of pregnancy we certainly do not understand. The influence which the normal placenta exerts in its normal

copical physiological capacity we know to a certain degree. What influence its pathological action may exert we may surmise. What action really takes place between placental and ovarian secretion, in a normal manner or in a pathological way, we shall some day understand. *In this problem lies, to my mind, the discovery of the pathological element in eclampsia.* That the placenta is a gland giving off into the maternal circulation elements derived from its ectoblastic trophoblast and syncytial cells is for me beyond question. That it acts upon the maternal blood and is in turn influenced by the latter is likewise beyond question. We must pre-suppose some element in the maternal circulation whose function it is to resist, modify, or counteract to a definite extent the action of this placental secretion. To my mind, the ovary furnishes this element. A mal-secretion on the part of the placental gland or, preferably, a relative mal-secretion due to insufficient or abnormal modification of the placental secretion by the elements furnished by the ovaries, furnishes the most plausible and logical explanation of the lesions of eclampsia. It would explain the microscopic pathological lesions described by Schmorl, as well as the irritation of the kidneys. The fact that so many cases occur shortly before, during or after labor, the fact that we have the division, therefore, into the acute and subacute forms can best be explained on the principle of an antagonistic action between two enzymes, the placental secretion on the one hand and a maternal secretion, probably the ovarian, on the other hand.

When fecundation and development of the ovum take place, the ovum and its enzymes nullify the menstrual stimulation and excretion of the ovarian secretion. The trophoblast cells invade the maternal decidua which is now constantly stimulated by the ovarian secretion, and likewise enter the maternal blood. A normal gestation is thus accompanied by the stimulating effects of the retained ovarian secretion and the ovarian and placental enzymes are then opposed in their action. No menstruation occurs, for the placental secretion has nullified the action of the usual forces.

At the end of nine months, when the ovarian secretion is sufficient in amount or character to overcome the inhibitory action of the enzymes of the ovum, labor occurs, that is, the same processes as are observed in a minuter degree in menstruation; for menstruation is a labor in miniature.

Chorio epithelioma, occurring generally after abortion or hydatid mole, is the cause and not the result of the abortion. Chorio

epithelioma represents a more advanced stage than that of mole, but both of these conditions, in a basic way, follow normal steps in their course and growth. The difference is in the power of unlimited growth, possessed by the chorion in these pathological conditions. The difference is due to the lack of resistance offered by the patient and points to a constitutional element. The lack of some normal secretion is the important factor in the etiology of chorio epithelioma. It may be said that the growth is due to the fact that the resistance to the fetal and fetal cells offered by the blood and a secretion, probably of the ovaries, is insufficient to hold the growth of the chorion within normal limits.

Remembering the constitutional action of ovarian secretion, the nervous irritability of pregnancy and the existence of a normal secretion, it may be said that the constitutional involvement as eclampsia occurs before, during, or after labor, as a result of a pathological placental or ovarian secretion or (2) the lack of proper antagonism between the two. It is, in the true sense, an auto-intoxication.

127 EAST 61ST STREET.

UTERO-VAGINAL TAMPONADE; ITS OBSTETRIC

BY

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THE use of tampons inserted into the vagina for the control of hemorrhage is very old. They were mainly used to carry astringents, vinegar, etc., to the parts. Leroux, in 1776, introduced the actual vaginal tamponade, and by some¹ it is claimed that he advised uterine tamponade. This he did not do, as his tampons were used simply to carry astringents into the uterus.

The real inventor of the uterine tamponade, according to Dührssen,² the father of the procedure, is Wendelstaedt, who recommended it in 1806. In 1887 Dührssen³ published the

¹Auvard. *Travaux d'obstetrique*, Tome II, Paris, 1889.

²Dührssen. *Ueber die Behandlung der Blutungen Post-partum*, in Mann's Sammlung Klin. Vorträge No. 347.

³Dührssen. *Centralblatt für Gyn.*, 1887, No. 35.

of tamponing the uterus with iodoform gauze, for post-partum hemorrhage. Previous to this various procedures had been practiced, *e.g.*, application of perchloride of iron to the uterus, Binet and Barnes; the insertion of bladders and rubber bags into the uterus, Rouget, Chassagny, *et al'*; through these the real value of the tamponade was hidden and lost. To Dührssen, then, belongs the credit for introducing and forcing on the medical profession the truth of the value of the utero-vaginal tamponade in post-partum hemorrhage.

There are other uses for the procedure, which we will take up in order.

POST-PARTUM HEMORRHAGE.

The frequency of severe hemorrhage post-partum is variously estimated. In Germany Dührssen finds about three hundred deaths from it each year. The writer has had no death from post-partum hemorrhage, but knows the details of two cases occurring in the city.

The causes of post-partum hemorrhage are divisible into three grand classes, atony of the uterus, lacerations in the parturient canal, and disordered blood. Atony may come from many causes—previous over-distention, too rapid delivery, retained pieces of placenta or adherent blood clots, a generally weakened woman, etc. Of the lacerations, cervix and lower uterine segment tears are the most formidable, though the writer has seen four cases of severe hemorrhage from clitoris tears. One was almost fatal. Abnormal conditions of the blood have been held forth as causative of post-partum hemorrhage, but only recently is proper recognition being given them. The writer, in a paper on a case of accidental hemorrhage,⁴ reported three cases where a blood dyscrasia existed, causing severe, and, in one case, fatal hemorrhage. Ahlfeld⁵ tells of a fatal post-partum bleeding, in spite of tamponade, where examination of the blood showed absence of fibrinogen and a deficiency of organic substances.

Of primary importance in the treatment of any case of post-partum hemorrhage is the recognition of the cause. Before the placenta is delivered one may be unable to determine whether the bleeding is due to laceration or abnormality in the mechanism of the third stage. In such cases of hemorrhage it is the writer's

⁴De Lee. American Journal Obstetrics, Vol. XLIV, No. 6.

⁵Ahlfeld. Zeitschrift für Geb. und. Gyn., Bd. XLVII, Hft. 2.

practice to carefully and quickly inspect the visible wound, to massage the uterus vigorously, and if the bleeding does not stop immediately, to express the placenta. If the placenta does not come readily, or if the hemorrhage persists after its delivery, a sterile hand is passed into the genitals, the whole genital tract is quickly emptied and the surfaces palpated for injury. The condition of the uterus and the site and extent of laceration are determined, and proper treatment at once instituted. A high clitoris or low vaginal tear should be sutured. A high cervical, or lower uterine tear may, under favorable circumstances, be sewed up. Such favorable conditions are moderate hemorrhage and surgical facilities. Where one can see the source of the hemorrhage, if it comes from a laceration in the cervix it is usually possible to pass the needle through the angles of the wound. However, in many cases the blood wells up in such amounts that the field is obscured and one feels the tear, but cannot see to sew it up. The recommendation of Henkel* to put vulsellum forceps at each side of the uterus, grasping the broad ligaments from the vaginal opening, deserves a trial here.

Should it be impossible or appear impracticable to suture a vaginal tear the best method of stopping the hemorrhage is utero-vaginal tamponade. Ergot and brisk uterine massage should be given in all cases of post-partum hemorrhage (the placenta is born) because firm contraction of the uterus tends to limit the bleeding from the lower uterine segment and the cervix.

In cases of hemorrhage from atony the routine treatment recommended by the writer is as follows: (1) Brisk uterine massage; (2) ergot; (3) a short but hot (125° to 130° F.) uterine douche; (4) external compression of the uterus in anteflexion; (5) utero-vaginal tamponade.

There are other methods which the writer occasionally employs, *e.g.*, compression of the aorta, drawing down the cervix, vulsella, packing the vagina and bimanual compression of the uterus through the tampon, external massage over the lower abdomen, in the uterus, electricity, etc. Which of these is to be employed and whether any time is to be wasted on the less certain methods depends on the nature of the labor, the amount of blood lost before, during and after labor, and the facilities at hand for treating the case. If the patient has lost much blood so that even a small loss appears dangerous, or, at most, undesirable,

*Archiv für Gynecologie, 1902.

uterus is packed at once. Such cases are, *e.g.*, placenta previa, premature detachment of the placenta, small and anemic women, cases of shock, etc.

If the patient has been treated by the less definitive methods, douches, massage, aortic compression, bimanual compression, attempted suture of a tear, etc., and the hemorrhage has persisted, one should not waste too much time and blood, but pack the utero-vaginal tract tightly. In fresh, strong, full-blooded women the usual methods will usually lead to success and one has no need of the tampon.

The tamponade in the writer's hands has proven so simple and so safe that he uses it prophylactically in cases where the bleeding is not great. Then the patient is considered safe and may be left without apprehension on the doctor's part, which is not the case where the accoucheur has, after much pains, gotten a hemorrhage to cease without tamponade; there is always the fear that it may recommence.

After an operative delivery, where often the patient has been in labor for many hours and it is desirable to get her off the table and warm in bed as soon as possible, it is a very grateful procedure to remove the placenta quickly, and if a little oozing persists or the uterus shows a tendency to fill with clots, to tampon the whole tract. The patient may then be safely put to bed. No time is wasted and blood lost on slow and uncertain methods of procuring hemostasis.

Hemorrhage sometimes comes from the lower uterine segment, especially in cases of low placental insertion; again, from small lacerations here, that cannot be reached by suture. The tampon is indicated in these cases.

After Cesarean section it may be necessary to tampon the uterus because of atony. Dührssen recommends it, also Vicarelli.*

Where there exists a blood dyscrasia the case takes a decidedly serious aspect. If a woman is known to be a bleeder, during pregnancy calcium chloride and gelatin should be given; and for the labor special preparation should be made. It is usually not known that the patient has this tendency, and the appearance of the blood will not suggest it in all cases. In some cases the blood presents an altered appearance, being watery or lake-colored, or resembling

*Vicarelli. "Seven Cases of Uterine Tamponade after Cesarean Section." L'Anno scolastico, 1900, 1901, dell Istituto ostetrico e ginecologico della Univ. de' Torneo, 1901.

an emulsion of red brick dust. The clots are not firm, do not look like healthy cruor, and they may be small and almost black.

Where the appearance of the blood suggests some abnormality of its constituents and where one tamponade has proven ineffective, the utero-vaginal tract should be repacked with gauze saturated with a 10-per-cent. solution of gelatin. In two instances on my own this procedure stopped at once obstinate hemorrhage. The greatest care must be exercised to obtain sterile gelatin solution. In the two cases referred to the gelatin was boiled over a hot fire for thirty minutes with constant stirring to prevent burning. Gradewitz⁹ reports a case and refers to seven other cases of fatal tetanus infection from subcutaneous injections of gelatin solution. The writer has had no experience with adrenalectomy as a treatment of puerperal hemorrhages.

THE TECHNIQUE OF THE OPERATION.

It is best to pack the whole utero-vaginal tract and to use a piece of gauze. This facilitates removal. The writer packs the gauze as follows: Ordinary so-called sterile gauze, sold by surgical supply houses is used, is cut into strips thirteen yards long and one-half yard wide; it is folded and the selvedge and raw edges turned in, then thoroughly washed in running water, after which it is boiled twenty minutes in .5-per-cent lysol solution. It is then allowed to soak several hours in this solution, when it is squeezed out dry through a scalded clothes wringer. Using rubber bands, each strip is packed into a sterile jar, filling it evenly and starting from the bottom to the top, on which a layer of cotton is placed and the jar is closed. The jar is put in the steam sterilizer and boiled every day for three days, two hours each time. At the last boiling, while still warm, the head of the jar is dipped in melted paraffine to seal it. Thus prepared, the gauze will keep for years and is absolutely safe. When time to use it, the wrapper is removed, the cap taken off, the jar covered with a sterile cloth and the gauze introduced directly from the jar which is held over the vulva. The half hand is placed in the vagina with the tips in the cervix, and by means of a long curved packing needle the end of the gauze is carried to the top of the uterine cavity. When the whole cavity is packed, making sure to fill out the sides, when the uterus is half full the gauze is stuffed in by the finger of the other hand on the fundus through the abdomen as follows:

⁹Gradewitz. Cent. für Gyn., No. 3, 1902, p. 967.

sure. For aseptic reasons the belly is covered with a sterile cloth. The packing is then continued. After the uterus is full the vagina is tamponed tightly also. In some few cases more than thirteen yards could be packed in, while others need only four or six yards. This depends on the uterine contraction and the size of the parts. That the strictest surgical asepsis should be practiced is absolutely necessary for success.

Other antiseptics than lysol have been recommended, but the writer has seen no good reason to change. Non-absorbing gauze has also been tried, instead of the absorbent, one operator having soaked the gauze impregnated with gutta-percha. It is doubtful if tamponing will take place as readily in such gauze as in that here recommended.

A modification of the tampon was employed by the writer in two cases. Since bleeding continued from the uterus after its cavity was filled with gauze, not relying on the vaginal tampon to stop the hemorrhage, the gauze was cut off after the cervix was filled and the anterior and posterior lips of the latter drawn together and united by sutures, closing the uterus entirely. The effect of this procedure was excellent in both cases.

The gauze is removed in sixteen to thirty-six hours. In cases of laceration only the gauze may be removed all at one sitting, and soon. In cases of tamponade for laceration it is advisable to remove a few yards at a time, the last at the end of forty-eight hours. In all cases fresh gauze and instruments should be at hand to repack if the hemorrhage starts up again. In only one case has the writer found this necessary—a case of deep, lower uterine segment tear. (Recovery.) The gauze should be removed very slowly, taking about thirty minutes of gradual traction, relaxing the tension every few minutes to allow the uterus to follow down the gauze. As a rule, the uterus contracts down hard when thus emptied.

THE ACTION OF THE GAUZE.

The reasons of the success of the gauze in stopping the hemorrhage are:

The rough packing stimulates the uterus to contract. One can feel the uterus contract as its cavity is filled by the gauze.

The gauze tampons directly the site of the hemorrhage, and the pressure mechanically stops the flow of the blood.

The gauze acts like a Miculicz, and favors the clotting of the blood in the meshes, and in the subjacent mucous membrane.

4. The gauze fills up the empty uterus. It is a clinical fact that in some cases the uterus will not close down on itself sufficiently to obliterate its cavity and stop the hemorrhage. A clot does not stop hemorrhage well, but gauze does.

5. The gauze lifts up and supports the uterus, relieving the congestion it undergoes when sagging in the pelvis. The establishment of an easy circulation does much to stop hemorrhage.

THE OBJECTIONS TO THE PROCEDURE.

Any departure from the previous order of things evokes criticism, and the tamponade, when exploited by Dührssen, is no exception. Many voices were raised against it, and the work was not smooth for it. Here and there, however, the method was employed, and now with a few exceptions the procedure has obtained recognition abroad, and, perhaps to a less extent, in this country. The objections urged, usually by men who had not tamponed, or had tamponed poorly, or who argued entirely from theoretical standpoints, were as follows:

a. The method is unphysiological; that all our efforts should be directed to empty the uterus, to get it to contract down on itself; that only by obtaining contraction could hemorrhage be stopped; and that the gauze by filling the uterus prevented contraction, thus directly increasing the flow. To which I replied: (1) A uterus can contract sufficiently to stop hemorrhage when it is only partially emptied—evidence, those cases where the placenta is still in the uterus, detached, and there is no bleeding; (2) the uterus contracts when there is a larger mass in it, namely, the child. Further, we find many women that after tamponing suffer from after pains. (3) All uteri *will not* contract down sufficiently to bring the walls in apposition; a space remains, and this fills up with clot which stops further hemorrhage. When we squeeze out the clot, as recommended in so many texts, the hemorrhage sometimes recommences and ceases only when another clot is formed. This process may be repeated until the patient is exsanguinated, so in these cases the advice should be *to leave the clot; it is nature's tampon of a vacant cavity*. The writer has had several cases where there was no deterriment from laceration, and the women bled dangerously in spite of a contracted uterus. Contraction of the uterus, therefore, does not stop everything. (5) Finally, clinical experience in a large number

shows that the tamponed uterus contracts, and firmly too, so that it does not allow clots to form on top of the gauze.

The second objection urged against the tampon is the danger of

It seems superfluous in this day to try to refute this argument. The uterine tampon is no more dangerous than the Miculicz vaginal tampon, and a man who cannot apply one aseptically is not safe to be entrusted with other obstetric operations. It is true that germs in the vagina may be carried up into the uterus. The danger from this is minimal, because the germs in the vagina have low virulence, the canal is usually pretty well cleaned out at the close of labor, an antiseptic vaginal douche has almost always preceded the tamponade, and finally, the lysol gauze is slightly antiseptic itself. In the fifty cases in which the writer tamponed the uterus only four had fever, and one had 103° F. at the time of operation. The others were infected by many other conditions. In one case she was really ill, and she recovered. In fact, the writer sometimes tampons to prevent sepsis, believing that the lysol gauze has some antiseptic effect.

It has been said the cervix could be torn by the vulsellæ used to hold the uterus down, and that the gauze could be pushed up into the uterus. A little practice will enable one to dispense with the vulsellæ, and one could, if it were desirable, do without the operating forceps. Ordinary care will prevent accidents, and the writer has designed a forceps for packing which makes such an injury well nigh impossible.

The danger of air embolism has been raised as an objection. In one case has been reported (Dührssen, *l.c.*), and this is not so fulfilling. This possibility is very remote, is not as great as with many other obstetric procedures, and can be avoided by raising the shoulders a little above the level of the uterus. The objection is a purely polemic.

Finally, the tampon has been called inefficient, and it has been claimed that operators use it when not necessary, and, therefore, do not obtain good results.

That the tampon is efficient the fifty cases reported herewith show beyond all doubt. Fifty cases, and in all but one the bleeding has stopped. In three cases it was necessary to remove one tampon and insert another. One of these, a uterine tear, was promptly packed by an excited operator, who was unprepared for the emergency; in two others, the patients were bleeders. In the first the hemorrhage ceased gradually; in the second it stopped definitely when the parturient canal was packed with

gelatin gauze. The patient in whose case the tampon stop the bleeding was a hemophilic, with detachment placenta. The patient bled from the hypodermic puncta. As a hematoma developing around each, there was a bloody infection extending through the vulva, the vagina, and, presumably, into the uterus and sub-peritoneal spaces, without visible injuries. The patient was dying before the tampon was applied. In the absence of rest the hemorrhage ceased at once, and permanently.

The writer is willing to admit that many women are tamponed when one could get along without the procedure; in fact, a few of his own cases fall in this category. What one could do, "necessary" to do, in cases of post-partum hemorrhage, is on the standard of obstetric practice one sets. To barely save a woman alive, and to save most of the babies, is not our obstetric standard. We must save all the women and babies who are healthy, and leave them well and secure from immediate future, temporary or permanent invalidism.

Cases are known to the writer where the effects of a hemorrhage were felt for months and years. The puerperium is long, and a severe hemorrhage, lactation is often disturbed, the wounds cover slowly and are more exposed to septic complications. Thromboses and emboli are invited (Barnes' Obstetrics, p. 60), blindness, (Hughlings, Jackson, *ibidem*), and hemiplegia, aphasia. Pernicious anemia may originate in a severe hemorrhage (Dock). After a severe hemorrhage one is inclined to tampon the repair of lacerations, or do the work hastily and poorly.

The loss of over a pint of blood at a labor should be prevented. This loss compensates the gain of the fluid during pregnancy, and is not felt by the woman. Although a woman may lose a pint of blood, or even three pints, and not be seriously anemic, hemorrhages should be prevented because unnecessary and dangerous. One can never be certain of the way an individual reacts to the loss of blood, some being deeply affected by a small loss and others standing a profuse flooding with few symptoms of anemia. Most patients bear up well under hemorrhage to a certain point, passing which, the condition becomes one of jeopardy. In a small anemic woman a small loss of blood is serious. One-thirteenth the body weight being blood, a woman weighing one hundred pounds has only eight pints. A woman may recover after losing one-third the total quantity, and if one-half is lost. The limits of a hemorrhage, therefore, are not parent. Then, too, hemorrhage must be taken well in hand.

se one does not know how successful, or how quickly successful the various hemostatic measures may be.

Considering all these facts, it is the course of wisdom to consider every hemorrhage over a pint as serious, to step in early to stop such loss and to not waste time on inefficient or slow methods of procuring hemostasis.

The following obstetric authorities recommend the use of the vaginal tampon in post-partum hemorrhage, but are by no means all: Dührssen, Küstner, Leopold, Auvard, Fraipont, Walcher, Benckiser, Fritsch, Zweifel, Schaeffer, Schauta, Engelberg (Wiener).

Among American authors, Jewett, Davis, Parvin, Grandin, Jarvis, J. C. Webster, Hirst, Reynolds.

Cervix tears, Olshausen, Veit, Kleinwächter, Ahlfeld.

USE OF THE TAMPONADE IN PLACENTA PREVIA.

The writer finds little use for this measure. In cases of hemorrhage from placenta previa, if the patient is where she can be actively treated, the tampon has no place. If it is necessary to transport the patient, or if one is waiting for help or instruments, the vagina should be tightly tamponed to prevent an unnecessary loss of blood.

The *tamponade to induce labor* is one of the milder measures used for this end. It may very advantageously be combined with the use of soft rubber bougies. After the bougie is inserted the writer packs the cervix with weak iodoform gauze, and then, with the vagina. Pains are more rapidly brought on than by the use of the bougies. The cervico-vaginal tamponade alone, for the induction, has been used by several operators and with success, though Keitler and Pernitza¹⁰ give a contrary opinion.

II.

Use of the Tamponade in Abortions.—The vaginal tampon is a standard and useful treatment of certain conditions occurring in abortion, but the writer wishes to recommend a procedure that is generally practiced, for the treatment of incomplete abortion and for the induction of abortion for therapeutic purposes. When part of the ovum is expelled and it is impossible or undesirable to forcibly dilate the uterus and remove the remainder, Keitler and Pernitza. *Berichte aus der II. Geburts. Klinik, Wien, 1902.*

a safe course is to pack the uterine cavity with a thin gauze, then tampon the vagina tightly with sterile cotton and leave the case till next day. The cervix will then be found and easily dilatable, if not fully dilated, and the gauze with its contents, expelled on top of the cotton tampon.

In inducing therapeutic abortion the sac may be punctured, the amniotic cavity packed with gauze, and then the vagina, as described. This may be done without anesthesia, and on the next day the cervix will be found softened, or even fully open, so that the removal of the uterine contents is an easy matter. Induction performed thus, in two sittings, is much less likely to cause injuries in the cervix, and where haste is not necessary this is to be preferred.

The utero-vaginal tamponade as a means of carrying infection to the parturient tract is employed by some accoucheurs. The writer believes this field of usefulness is very restricted, and that the procedure is capable of much harm.

After cleaning the uterus in cases of puerperal sepsis and after abortion the utero-vaginal tract is lightly filled with a 4 per cent. iodoform gauze in one strip. The main object of this is to prevent the formation of blood clots in the uterus, and to prevent when the gauze is withdrawn, in four or five hours, suppuration. The parturient canal is then left severely alone. When symptoms point to the formation of abscess, when the case is treated on surgical principles.

The writer believes that constant manipulation of the uterus, as by douches, curettage, medicinal applications, etc., only aggravates the affection and carries the poison deeper, while at the same time the actual local benefit derived is lost. The spread of the disease to inaccessible regions.

This paper does not comprehend the use of the simple cotton tampon; and it does not intend to mean that there are no occasional cases where the utero-vaginal tamponade may be employed.

PRIMARY CARCINOMA OF THE URETHRA IN THE FEMALE.
OF A CASE TOGETHER WITH A CRITICAL REVIEW OF THE LITERATURE
REGARDING THIS RARE FORM OF CANCER.¹

BY

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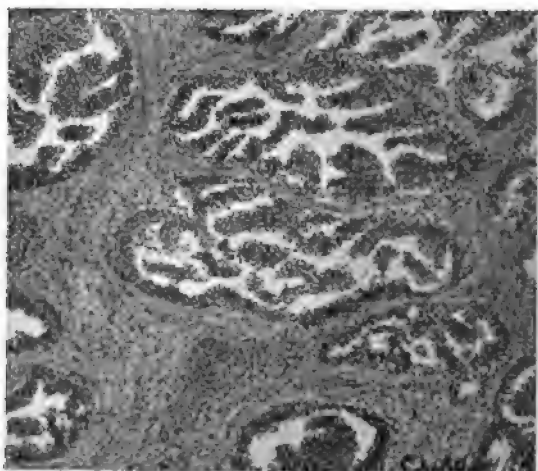
(With one illustration.)

November, 1898, a woman was referred to me by a colleague, coming from a growth of the urethral meatus that was new in experience. It was evidently malignant, and therefore the one of more suffering than its size would otherwise seem to merit.

Looking up the literature of urethral growths I found that one had happened on one of the rarest locations for cancer, for in the statistical list which I consulted was cancer of the urethra named. Frankenthal, of Chicago, writing from the Clinic of Winckel in Munich, in 1889, makes this statement: "Of primary urethral carcinoma in women only the cases of Bardenheuer, Thomas and von Winckel are known—four in all." I then made an inquiry which began with the Librarian in the Surgeon General's Office, at Washington, D. C., and extended to personal correspondence with one hundred surgeons in various parts of this country. At that time but two cases were recorded in the Index Catalogue of the Surgeon General's Office. One by T. Gaillard Thomas, of New York, and the other by Winckel in France. Curiously this latter case until now has not been mentioned by any writer on primary malignant disease of the urethra. A more recent inquiry in Washington (July, 1902) showed that five additional cases purporting to be primary have been recorded. To these I refer below. In my personal correspondence I chose surgeons, who, because of their relationship to hospitals and clinics, could give me valuable information as to the condition, after all, this condition was as rare as I had so far been led to believe. I received a reply from every one of my correspondents and letters. These were interesting. One prominent Philadelphia gynecologist reported having treated "six or more such as I refer to." Two of these were still under observation at the

and by invitation before the Chicago Gynecological Society, January 1904.

time he wrote. The doctor added that all of his cases had been between the ages of 35 and 40; that all had been treated by excision of the major part of the urethra with the cautery, and that all of them had terminated by general metastases. A letter stated further that a paper on this subject, read before the American Medical Association, would "elicit a report of the numbers in the discussion." The doctor's diagnosis was purely clinical and no attempt was made to prove with the microscope or otherwise that the origin of the growths was in the urethra. On the other hand, some of my correspondents—surgeons, gynecological and general, of equally large experience—of whom one just quoted—report never having seen the condition.



Carcinoma of Urethra.

is also true of the city health departments of Chicago and New York, including the skin and cancer hospital of the latter.

A letter from Dr. W. B. Coley states that he does "not know of a single case in which the disease (cancer) was primary of the urethra." It is an interesting fact that of the surgeons in New York, whom I reached by letter in 1899, but none of whom had ever having seen a case; he gave a list of ten; but none of them was primary in the urethra. However, within a year three cases had been reported by New York observers, which I have mentioned below.

No cases were reported to me as having been seen in Boston, Buffalo, Baltimore or San Francisco.

hand, of the letters received from surgeons in New Chicago, Philadelphia; Pasadena, Cal.; Columbus and Cincinnati, Ohio; Kansas City, Mo.; Rochester, Minn., and Grand Rapids, Mich., fifty-eight cases assuming to be this primary origin were reported to me by thirty-one surgeons. Unfortunately the majority of those who give these reports do not accurately state the true origin of the growth, at least as to its relationship primarily to the urethra. This delinquency in the careful reporting of cases obtains not alone in this country, but to a like degree among the foreign observers. A good illustration of this is the much referred to paper of M. Wassermann.⁴⁹ This author has brought together twenty-four cases, twenty-three of which had been published before. The title of this paper is: "Primary Epithelioma of the Urethra," and in reference to the original article by M. Wassermann shows that of the twenty-four cases enumerated by him in the female, all are distinctly stated to be of the peri-urethral variety. But the writer on this subject since the paper of M. Wassermann has not only quoted and refers to the twenty-four cases as if they were all recorded as of primary origin in the urethra. I expect to be able to show that but three of the twenty-four cases collected by Wassermann really belong in the column of primary urethral cancer and that, too, on the evidence of the original reports. The laxity in collecting and reporting cases will undoubtedly continue for the comparatively large number passing current in the literature within a few years. A recent work on Clinical Surgery⁵⁰ has an article on "Excision of the Urethra" has the following: "Operation may be indicated for Epithelioma of the meatus, a condition which is not very uncommon." Without a doubt this statement has been inspired by the growing number of cases recorded under the name of urethral cancer; and always the inference is drawn that they are primary. On the other hand Skene, in his book on diseases of women, in the section on Epithelial Neoplasms says: "The existence of cancerous disease of the female urethra as a primary affection is greatly doubted by many authors, but it probably does occasionally occur. Indeed, as a secondary affection it is quite rare, for, when extending from the uterus or other pelvic organs to the bladder, death as a rule results before the urethra is involved. In cases where life is usually prolonged the disease seldom attacks more than the vesical portion of the urethra. Extension from the outer genitals, which are very rarely

affected with cancerous disease (to the urethra) is still common, and possibly has never occurred."

Dr. Frankenthal quotes Professor Zemann, of Vienna, in a personal communication stated that he had never seen a specimen of primary carcinoma of the female urethra and that there was no specimen in the museum. The same answer was also given by Professor Orth, now of Berlin, and he added that such cases should be reported on account of their rarity.

Some writers have tried to solve the reasons for the infrequency of these growths. This is a difficult question and its solution has not been aided by the explanations so far attempted. It is interesting to note that no case of malignant disease of the urethra has been reported as occurring in children. In an article published³⁴ on "Malignant Disease of the Kidney in Children," I have called attention to the fact that malignancy of the urinary tract occurs most frequently in the kidneys and at a very early life ante-dating the tenth year.

I find but one case of primary urethral carcinoma in the literature reported—that by Frankenthal, in which there was an antecedent history of cancer in the patient's family.

I wish now to make briefly a critical review of the cases of primary urethral cancer in women reported in the literature. I shall commence with the paper of Wassermann.

By an examination of the original reports of the cases collected by this writer it will be found that the one³⁵ credited to Reichel and enumerated in M. Wassermann's list as number seven is very dubious when the original article is read. Reichel closes his report of his case as follows: "The primary point of departure of the disease is naturally in cases already far advanced, determined with great difficulty or no longer with absolute certainty; but the growth generally appears to correspond to the external orifice of the urethra."

Zweifel (case 22, Wassermann) refers to the fact of the growth in his case being surrounded by a fungoid growth which was ulcerated *and involved the clitoris*. This fact makes the true origin of the growth in the urethra doubtful. When any other anatomical structure adjacent to the urethra is involved with a malignant process at the time of the first examination of the patient, the true origin of the growth must always remain in doubt. A case which I was fortunate enough to see was one of carcinoma of the urethra following a like process of ulceration. Between these two points were little islands or buds of cancerous cells at varying distances from each other. My own

that the primary origin of this particular growth was the anus, and that the urethra was involved secondarily. I merely assume, however, basing it on the fact that the carcinoma of the anus is so much greater in extent than the involvement of the urethra. In any rate it is clear that these little cancerous buds were the points of communication or of the infection between the anus and the urethra regardless of the primary focus. I may add in passing that it would seem from a study of the cases reported that those which are probably primary in the urethra extend by involving deep pelvic structures, and especially the glands, both pelvic and inguinal. The so-called peri-urethral (or vulvo-urethral, as Trendelenburg would designate it) form of cancer spreads by involving the more superficial adjacent tissues. This does not agree with the statement of Melchior and Riberi (quoted by von Senn), who state that in the peri-urethral form the pelvic connective tissues become involved early in the disease. However, a careful analysis of the undoubted primary cases reported will, I am sure, show that this is an error. To refer again to the case of Zweifel¹, as stated above, there was too extensive an involvement of tissues other than those of the urethra at the time of the first examination of the patient to give it an undoubted place as an example of true primary urethral carcinoma. This case is especially interesting because of the extensive employment of surgery which was necessary for its removal. Not only was the external circular incision around the urethra made, but to this was added a symphyseotomy, laparotomy; and a removal of the lower part of the bladder, together with the urethra and clitoris in their entirety after division of the anterior vaginal wall. A vesicovaginal fistula was then established which completed the operation. The patient fully recovered from this and at the end of ten months there had been no recurrence of the growth.

Case 24, Wassermann, treated by Albarran, is, according to the original article, one of cancer of the penis in a male. This reporting of cases of cancer occurring in the male penis in articles which presume to deal exclusively with this disease in the urethra of the female is not infrequent. Again, this is true of case 18, Wassermann, where a male, æt. 64, suffered from cancer involving chiefly the bladder and perineum.

Case 20, Wassermann, reported in the thesis of Sigmund Goldschmidt, under the microscope proved to be a fibroma.

Case number 1, Wassermann, by M. Lahaye,⁵⁰ found in the memoirs of Riberi is given in the original as a primary scirrhus of

the vestibule of the vulva. When the case first presented general involvement was so extensive that a correct knowledge of its primary origin was impossible.

Case 11, in Wassermann's series, reported by Soullier, Pean's Clinic, in 1889, is also very doubtful as to its origin. Much can be said of Case No. 13, also in M. Wassermann's series, from the thesis of Picque, reported by Soullier. There was prolapse of the uterus and the report states that its neck "is at the anterior pole of the tumor whose surface is furrowed by large transversal ulcerations." "At the top of this tumor the urinary meatus opens." This description is too indefinite to compare with some of the reports which were received from the personal correspondence of cases which had to be rejected on account of the indefiniteness of their delineation.

The case of Bardenhauer⁷ (No. 7, Wassermann), referred to as carcinoma, when the original is consulted does not prove this. To quote Bardenhauer, "the diagnosis was doubtful because as no attempt was made to prove the origin of the growth by microscopical examination, this view of the case must be accepted." It is interesting to note that this is one of the four cases mentioned by von Winckel as certainly genuine, not only by Frankenthal, but by all who have written on this subject.

Of von Winckel's² two cases (9 and 10, Wassermann), the first can be considered as primary in the urethra. Both of these cases are reported in a model way in the author's work on the "Anatomy and Physiology of the Sexual Organs in Women;" but why the one numbered 10, by Wassermann, because of the involvement of the bladder and other structures should be included in a list purporting to be made up exclusively of primary cases of urethral carcinoma, is difficult to understand. The other (No. 9, Wassermann) is undoubtedly a true primary malignant growth. The pathological report was made by Birch-Hirschfeld.

The two cases in Wassermann's list (Nos. 16 and 17) referred to by Reichel, have a questionable place there. I have not quoted Reichel, who said that in an advanced case it was extremely difficult to accurately locate the primary focus. This may be said of both of his cases, and where accuracy is the essential thing they should not be included if there is a reasonable doubt. M. Wassermann states that one of Reichel's cases (No. 16) was an epithelioma, but the author in his original report of his case states that no microscopical examination was made from the tumor.

le Dauny (No. 23, Wassermann) reports his case as follows:—
 "There exist on the walls of the vagina three small primary cancerous buds, one at a point corresponding to the lower part of the urethra, a second on the left vaginal wall, the third at the union of the right wall and the anterior wall." This quotation from the original paper of Dauny regarding his case makes it necessary to reject it as one of certain primary origin in the urethra.

I operated July 18, 1901, on a case of carcinoma of the vagina in which there also existed a secondary (?) carcinoma of the outer portion of the urethra. Between the anus and the urethra there was to be found a number of "small second-cancerous buds." It is evident, therefore, that when a case of cancer of the urethra is first seen and in addition there is some involvement in ever so slight a degree of the adjoining structures, the certain primary development of the growth in the urethra always remain in doubt. In my own case, just referred to—cancer of the anus with secondary (?) involvement of the urethra—the little islands of cancer were not larger than one-eighth of an inch. But when the secondary growth in the urethra in which they probably gave rise was first seen it had developed to eight times the diameter of any one of the intervening cancerous islands between the urethra and anus. Dauny's case is not different from this (vulvo-urethral) case of mine, and as I am in doubt as to the primary origin of the malignant process in my patient, we must likewise remain in doubt concerning a case where there is a "secondary" (?) cancerous buds.

In order to estimate accurately how frequently primary cancer of the urethra occurs it is necessary that all cases should be observed in the earliest stages of development. This investigation of the original reports of the twenty-four cases enumerated by Wassermann leaves us with but three female subjects, the unfortunate victims of cancer primarily developing in the urethra. These were originally reported by Thomas, Low and von Kries.

The case of Dietzer, operated upon by Veit (No. 19, Wassermann), if considered at all should be placed in the doubtful class of primary urethral growths because of the involvement of the clitoris. This leaves, then, twenty-one of the cases collected by M. Wassermann out of the question as primary urethral cancers in the female urethra.

Wassermann ascribes to Melchiori the honor of being the

first to operate on cases of malignant disease of the urethra. Melchiori reported his first case in 1854. Lahaye,⁵⁰ in his history, credits Riberi with an operation on cancer of the urethra in 1844, and considers him first.

M. Jobert⁶ reports a case operated upon by him in 1828. A careful perusal of this article makes interesting reading. From it one learns that in Jobert's day the rarity of primary malignant disease of the urethra was recognized. Incidentally one learns that the use of the silver salts in the form of an ointment was considered even in that day valuable in treating infectious diseases, such as erysipelas. This writer commences his paper with the following words: "Most authors who have written on the cancer of the urethra in the female have only described cases which have developed originally in some other part of the urinary organs. Primary cancer of the urethra is a rare affection. I know of only two cases, one of which is described by M. Boivin in her work, while the other occurred in my series. The woman aged 56 years." He then goes on to describe very minutely what would, in the absence of a microscopical report, be taken to be a primary case of malignant disease of the structure under consideration. At any rate Jobert is careful to note that there was no involvement of the tissues other than the urethra in the pathological process when the patient was first observed. He operated and removed the urethra completely down to the neck of the bladder.

The other case referred to by M. Jobert is to be found in his work, in two volumes, by a Frenchwoman, Mme. Boivin. This case came under observation October 26, 1828, and the illustration, together with the plate which accompanies the report, of what was found, is most interesting, leaving no doubt in the mind of the reader that this case was, as stated by Jobert, a true case of the primary growth in the urethra. Additional weight is given to this statement by the fact that the patient died later in the same country, Holland, of cancer of the stomach.

In 1897, Dr. Hottinger,¹¹ of Zurich, published a paper on "Primary Carcinoma of the Urethra." This paper, like the one by M. Wassermann, treats of this disease in both the male and female. Hottinger quotes freely from Wassermann's paper and makes the statement that it is the best that has so far appeared on the subject. This author refers to three cases treated by Kaufmann, as they were all in the urethra of males it is unnecessary to discuss them further here. He also adds that the twenty-f

ed in the list compiled by Wassermann are all of the primary al class, something which I think this paper will show to be regious error. Again, Dr. Hottinger makes the mistake that iters on this subject seem to have made, viz., of reporting under the caption of "Primary" and then going on to erate any and all forms of erosive diseases occurring in this as primary malignant growths of the urethra. These re- are not infrequently very incomplete from a descriptive ooint, and also many of them are not accompanied by a scopical diagnosis. This loose method of reporting is most unate because it tends to confuse what would otherwise be ble facts. At the same time it compels the circumspect ob- to carefully review all of the work done on a given subject ose who have taken it up before him. Dr. Hottinger refers ne cases that are not reported in the paper by M. Wasser-

These references, however, are merely copied by him the Index Catalogue of the Surgeon General's Office, Vol. 894, and in each instance erroneously infers that the papers yman,¹¹ Martin,¹⁸ Mears (Urethra of the Male), Dunn,¹² nger, ¹³ Goldberg,¹⁴ and Cabot⁴² (Male Urethra) are all oles of primary urethral carcinoma. Hottinger says in his that he wants to add the above seven cases to the list col- by M. Wassermann. I have examined the original reports se seven cases and find, as above, that two are of the male a. Of the remaining cases, that of Lyman is one not only thelioma of the urethra but of the base of the bladder as Indeed, involvement of tissues of the urethra at the time e first examination of this patient was so extensive that it d be excluded at once from any further consideration as a ry urethral case. The case that this author also refers to as ed by Dunn is purely an example of the peri-urethral type e disease. The case is interesting, however, from the fact e extensive employment of surgery which was necessary for lief of the patient. The operation was performed in two : First, a supra-pubic urinary fistula was established, to- r with the removal of all of the infected inguinal glands. At cond operation the entire mass primarily affected was re- d. This included the nymphæ, clitoris, vestibule, urethra and ion of the anterior vaginal wall, back to and including an of the vesical neck with closure of the bladder from below. months afterward her condition was satisfactory and com- ple." The author also states: "So far as known, the pro-

cedure adopted in the above case is without precedent in the treatment of carcinoma of the female urethra and vesical neck. It is, however, paralleled by the cases of Zweifel (1893); of Hottinger (1894); of Goldberg (1896) and also by that of Rydman (1886). In this latter case the urine was conducted from the rectum through a recto-vaginal fistula.

The case of Martin, to which Hottinger refers, is also a true example of primary urethral carcinoma when the paper by Martin is consulted. True, there was retention of urine from obstruction of the urethra by a malignant growth, but when the case was first seen "the anterior vaginal wall was thickened" and there was a perforation of the urethra 2 c.m. from the meatus which communicated with the vagina, and it was large enough to allow the point of a silver sound to pass. No microscopic report is given. Autopsy disclosed surgical emphysema together with an ovoid growth surrounding the urethra the size of large egg of hen formed of cancerous tissue. "The superior wall of the vagina was invaded by the disease process and partly destroyed; it communicated with the lumen of the urethra for quite an extent."

The case of Weisinger, only referred to by Hottinger, may be included as a primary urethral case because when the case was first examined there was extensive involvement of the wall of the bladder. The operative treatment of the case, however, is interesting. After extirpation of the fundus of the bladder "extra-peritoneal oblique fistula was formed." The bladder was emptied through this fistula by the aid of Nélaton's catheter. The operation was successful and the patient recovered nicely.

Another case mentioned by Hottinger, but, as above, not viewed by him, is that of Dr. Goldberg. This case was reported at a meeting of the Gynecological Society in Dresden, February 10, 1896. This is also not a case of primary malignant carcinoma of the urethra and should not be reported in a paper purporting to treat of this subject. The report is valuable, however, for the extensive operation performed. This was followed by the making of an artificial urethra through the formation of a peritoneal oblique fistula above the symphysis, after the method of Witzel.

Hottinger gives place in his paper to the report of a case of his own, which is undoubtedly genuine. He describes it thoroughly and beautifully. He states what I believe to be the very best thing to designate in these cases when reporting them as

in the urethra, viz.: "Examination showed normal conditions of the body. The local examination reveals in place of the urethral orifice a knobby tumor, sclerotic, external, hard, which when touched caused pain and bled easily; size of chestnut. Clitoris and its surrounding tissues, as well as the labia were free from it; vagina also was normal. No hypertrophy of the inguinal glands. Behind the tumor the enlarged urethra could easily be felt, together with the fully distended bladder. To locate the urethral orifice was not so easy, being situated in the middle of a cirrhotic mass and only a very thin catheter could be passed." The microscopical diagnosis was made by Professor Ribbert. It was pavement epithelium carcinoma of the scirrhus variety.

Hottinger makes the following observations, which I consider a good epitome of the clinical knowledge at present obtainable regarding the later stages of these growths. "In cases of women," says Hottinger, "it is generally a tumor which starts from the urethral orifice, going forwards across the pubis, reaching the bladder and infiltrating the vagina." The consequences are: "Ulceration, destruction of the urethral orifice, followed by narrowing of the urethra, causing retention of urine, hemorrhage, painful micturition and coition."

Hottinger also states that three cases have been reported by Fritsch. A reference to the original reports of these, as found in the fourth edition (1889) of a work on diseases of women by Fritsch, will show that just five lines have been given to the report of the three. From another source I have learned that one of these was in the urethra of the male. In the last edition of his work, Fritsch¹⁸ reports six cases and gives but six lines to the lot. Manifestly none of these can be accurately determined as belonging to a group of true primary urethral carcinomas.

Schramm's¹⁹ article "which furnishes an example of genuine urethral carcinoma" cannot be stated so positively to be this when the original report of the clinical and pathological findings are considered. The patient when first examined was already cachetic and the growth involved the upper part of the labia minora on both sides and extended along the urethra to the neck of the bladder. The involvement of the urethra was so complete that the urine constantly dripped away. It could be voided with but a slight degree of force. The microscope showed the growth to be one of pavement epithelium.

An excellent report of an undoubted case of primary melanoma of the female urethra by Charles A. L. Reed,⁹ of Cin-

cinnati, is to be found in the transactions of the American Association of Obstetricians and Gynecologists. The case is especially interesting because it is the first and only one of melano-sarcoma reported in the literature. This case, with the one reported by Vineberg¹⁷ answers the requirement demanded by Hottinger, viz., that an examination should be made of no other portion of the whole body involved in the metastatic process except the urethra. Vineberg's case under the microscope proved to be a flattened cell carcinoma. This author made the same mistake that I have referred to as being common to nearly all who have attempted to write on this subject, overlooking the report of the cases in the literature without criticism. Practically he assumes that the twenty-four cases mentioned by Ehrendorfer all developed primarily in the urethra. The generalizations to be found in the paper of Ehrendorfer make him reliable in everything but the resumé which he gives of the literature.

Most of the cases quoted are from the paper by M. Wassermann, and I think that I have shown that but three of them bear critical investigation to prove their primary origin in the urethra. The additional cases reported by Ehrendorfer and which are not found in Wassermann's paper are the following: Hottinger (already reviewed); Bosse (according to Ehrendorfer is Bosse-Braun), and his own, which he states is not an example of the primary urethral form but rather an example of the vulvo-urethral variety of the disease or vulvo-urethral, as Ehrendorfer would describe it.

I am convinced that it is only by being fortunate enough to have the recorded experience of observers who see the disease early and report them fully that anything of definite and permanent value will come for their accurate study. Only in this way can the statement of Skene be proved or disproved. The "existence of cancerous disease of the female urethra as a primary affection is greatly doubted by many authors."

I can well concur in the advice of Ehrendorfer that examination of the genital organs of woman should include a careful inspection of the urethra for any abnormality of this region, especially so when any difficulty with the normal physiological function of the parts is complained of, and that this examination should extend to the post-mortem and dissecting rooms as well.

The paper of Bosse,¹⁹ quoted by Ehrendorfer, is the report of a case of peri-urethral cancer in a woman 57 years of age who was operated upon by Braun. In Virchow's²⁰ Jahresbericht

abstract of a case also by Bosse of peri-urethral carcinoma arising in a woman 25 years of age. Whether this is the same as the one referred to by Ehrendorfer, I am unable to say. In his publications the cases are reported in the same year, 1897. In the paper by Vineberg, already referred to, attention is drawn to seven cases in addition to his own. The one observed by him comes up to all of the requirements previously enumerated as necessary when a diagnosis is made of the primary development of malignant growth in the urethra. But why he should report the cases of McGill,²⁰ of C. Kynock,²¹ of J. Riddle Goffe,²² and Sandelin³⁰ as examples of this condition is difficult to understand.

McGill in his article in the *London Lancet* writes more fully on the repair of extensive vesico-vaginal fistula and states that it had to be derived in their closure from making a supra-pubic vesico-vaginal fistula. He evidently had no idea of classifying the pathology of his patient with those who had a primary growth in the urethra. This could not be done because not only was the urethra and vagina of this patient involved but the bladder as

well. Again Vineberg refers to the paper by Kynock, who reports a case similar to those under discussion. That it can certainly be included among the primary malignant growths of the urethra is doubtful. Had the patient been seen earlier in the development of the tumor it would perhaps have proven to be this. But according to the report, when the patient was first seen: "The floor and walls were indurated from cancerous infiltration, which extended nearly to but did not appear to involve the neck of the bladder and internal sphincter." Microscopical diagnosis—squamous epithelioma with abundant cells nests."

Until the question of what really constitutes a case of primary carcinoma of the urethra in women is settled, all cases in which any part other than the urethra is found involved at the first examination should not be considered.

Again, the case reported by Sandelin is referred to by Vineberg as one of genuine urethral carcinoma. It may have been so, but when the original article is reviewed it is found that the author says that the "examination showed an ulcerated carcinoma involving the whole urethra and a portion of the posterior wall."

Vineberg also mentions a case by Orthmann. Unfortunately this case is very imperfectly reported. There is no mention of the use of the microscope, or of involvement of the inguinal lymphatics or of the condition of the tissues contiguous to the urethra.

Besides this, Orthmann entitles his article "Demonstration of a Specimen of a Peri-urethral Carcinoma." When the report of this case is read in the original I am tempted to believe, even when the microscopical description of the tumor in situ is considered, that it could have been included with the primary group of the urethra had it been seen earlier and fully described.

The case of J. Riddle Goffe, found in the article by Vineberg, was one of primary epithelioma of the sphincter muscle of the bladder. The report of the pathologist contained the statement that the "microscopical examination demonstrates this tissue devoid of capsule and to consist largely of what appears to be thickened bladder wall." Malignant growths of the bladder are rare, but they do not compare with the infrequency of primary or secondary malignant disease of the urethra.

A case reported by Brothers²³ is also included by Dr. Vineberg in his list of recently reported neoplasms of the female urethra. In this case there was considerable hardening of the tissues of the urethra as well as of those which made up the urethral wall. From this standpoint the case again illustrates one of the points I wish to make in this paper, viz., that when the tissues surrounding the urethra are found abnormal, and involved in the pathological process, that it is exceedingly difficult to state the primary origin of the growth. From a clinical standpoint this may make no difference, but as a pathological question it is important. In his article Vineberg says he examined the specimen from the Brothers' case and found that "it presents rather the features of carcinoma of the vaginal wall involving the urethra secondarily." In the next paragraph he adds: "From its appearance it is impossible to say whether it originated in the vaginal wall and extended secondarily to the urethra or vice versa." It is unfortunate that cases of the above have crept into many of the articles to be considered as cancer of the urethra, and, as illustrated by Hottinger, they are very often finally recorded as primary in this type when the observer who first saw them was doubtful as to the origin of this. Dr. Brothers' case has already passed into the literature as a primary urethral carcinoma, and in his article he lists there are twenty-eight additional cases to be found in the literature. Vineberg even quotes the case reported by Ehrenberg as if it were primary in the urethra; yet the writer makes no claim, but classes it with the peri- or vulvo-urethral group.

The article by C. Jeff Miller,²⁴ also quoted by Vineberg,

edly adds to the statistics a genuine case of this rare form of malignant growth and to the literature an interesting paper in reference to it.

The same journal in which the report of Miller's case is found contains an abstract of a case of fibromyoma of the urethra by G. Wetherill,³⁵ of Denver. Three additional cases of this together with a reference to a case of myoma of the urethra, reported in the work by Howard Kelly³⁵ on operative gynecology. I merely mention these cases of fibroma and myoma because all pathological conditions are of interest in the correct diagnosis of malignancy in this situation. Kelly also mentions cases of primary urethral sarcoma by H. Beigel³⁶ and E. Ehrendorfer,³⁷ and one of myxosarcoma of the urethra in a child five years, reported by Galabin.³⁸

The case reported by Battle,³⁹ mentioned in the bibliography and which accompanies the article by Ehrendorfer, belongs to the urethral type of the disease. The bladder as well as the urethra were found involved at the time of the first examination. The article published by Cabot⁴² has been quoted as if his patient was a female. The growth occurred in a male.

An interesting case is also reported by Mordecai Price.⁴³ This is a case of primary epithelioma of the urethra in a woman, the result of complete laceration of the perineum of thirty years standing. "The perineum had been torn through into the bowel at a distance of two inches. The growth (in the urethra) was the size of a hulled walnut and gave great pain and annoyance, with a persistent discharge of pus and blood." "This condition had been produced by the constant use of bandages and cloths applied to the parts to prevent the intestinal discharges from soiling her clothes while sitting or walking." Dr. Thomas S. Kimball had previously closed a vesico-vaginal fistula for this patient. The interference with the normal anatomy made the operation difficult. "The parts were greatly swollen and irritated by the discharge from both the bowel and the malignant growth at the mouth of the urethra." The growth was fully excised and the perineal laceration closed. The result was a complete cure of both the laceration and the malignant condition. From a personal communication I learned that the growth under the microscope proved to be an epithelioma; that no parts other than the urethra were involved, and that the patient died two months after the operation of acute pneumonia without any symptoms of recurrence becoming manifest.

Ebermann⁴⁴ states that he can find but five cases of urethral carcinoma in the literature. "The sixth case I treated in a married woman 70 years old." This is unfortunately all the information regarding this patient which I could obtain. I have not included it among the cases enumerated in this paper. Ebermann believes that most cancers of the urethra arise primarily in the vagina and uterus, to involve later the urethra. In opposition to this view are those of Skene which I quote.

I believe that the above about completes a review of the literature. I have published and case reported on primary malignancy of the urethra since the one by Mme. Boivin in 1828. In addition I have added two heretofore unpublished, due to the courtesy of Drs. A. J. Ochsner, of Chicago, and C. W. Oviatt, of Milwaukee, Wis. I also add one which I personally treated. I believe that the statistical list which is made a part of this paper covers all cases of which there can be any doubt either that it was carcinoma of the urethra or that it was malignant. Every case recorded in this list—sixteen in all—has been admitted only after careful examination of the original report has shown that it was entitled to such a place.

I wish now to report the case that first excited my interest in primary cancer of the female urethra.

Mrs. C. P., aet. 38, Sweden. Mother of one child, a daughter, fourteen years of age. This is the only history of pregnancy and labor, both of which were normal. Family history negative. Personal health history exceptionally good, marked by a total absence of illness of any kind. Menstruated at regular intervals. Is of normal development and in apparent good health. No history or symptoms of specific disease. A general physical examination revealed nothing. Uterus in correct position. Vagina healthy. No tears of the vaginal outlet. No leucorrhoea. Resistance of abdominal walls to manipulation nil. Urine normal when drawn with catheter. No enlargement of inguinal lymphatic or other lymphatic glands. First consulted her family physician on July 19, 1898, because of dyspareunia, but acknowledged that at least two months previously she had begun to suffer from painful micturition. This was often followed by a persistent burning sensation. In addition to these symptoms, excruciating pains originating in the external genitals and extending into the legs were bitterly complained of. When the patient recognized that there was something unusual with the function she also noticed that there was an occasional

blood. This was looked upon by her as an evidence of some irregularity of the menstrual function. The growth was diagnosed as urethral caruncle and was treated by applications of the dry stick of silver nitrate. No influence on the tumor from the treatment was noted except that it was gray in color from the application of the silver. This was its appearance at the time of first examination, November 26, 1898. At that time the base of the tumor was one-fourth of an inch in diameter and sprang from the edge of the urethra and its lower and right lateral border. There was also a slight inflammatory edema (without tenderness) of the connective tissue adjacent to the urethral base of the tumor on its right side. I assumed that part of this at that time was due to the offensive discharge, which was very acrid, compelling the patient to observe great care in not permitting it to remain in contact with the skin. The excrescence part of the growth was round, about an inch in diameter, rather hard to touch and had a surface appearance not unlike that of the cauliflower. There was no spot of active ulceration and no bleeding at the time the patient was referred to me. The growth was present as well as the part about it, with a thin purulent secretion and an offensive odor. The mouth of the urethra (toward the front of the patient) was overlaid by the tumor. There was no swelling or sagging of the parts due to the weight of the growth. By displacing the tumor to the right, a sound could be easily passed into the bladder. Under ether anesthesia the growth was excised free, and as it came away a strip of the urethra (about two-thirds of the diameter and nearly an inch in length) remained attached to the tumor. With a knife the vestibule, together with what remained of urethral tissue, was dissected out down to the neck of the bladder. The urethra was cut off within a fourth of an inch of the bladder, inverted and closed over with a layer of gut sutures. Over this another layer of bladder tissue was sutured, silk being the suture material used. After closing the urethra a supra-pubic urinary fistula was established with the hope that permanent closure of the bladder at the urethral orifice would follow. Perfect union at the neck of the bladder did not result from the suturing. Regardless of the supra-pubic opening, some leakage occurred. The patient was compelled to wear a pad over the vulva and sometimes three or more of these were changed in the twenty-four hours. After the patient was able to be up she could completely empty the bladder by holding a dish over the supra-pubic fistula, and leaning over to allow the urine

to escape. Following this the patient did well for three months when she again presented herself because of a deep inguinal abscess on the right side which was due to cancer. On examination the right labia was found to be somewhat edematous, but there was no other evidence of recurrence at the point of the old operation. Cachexia was evident, however, but not marked at this time. The inguinal bubo was an extensive affair, undoubtedly extending deep into the pelvis. Nothing further was attempted by any other way of treatment. The patient returned to her home nearly ten months from the time she first consulted a physician, and in five and a half months from the time the urethra was removed.

I believe that this growth developed primarily from the urethra. When I first saw the patient no other tissues were involved. As far as could be determined by careful inspection and palpation. More than this, when the tumor was removed by total excision, the greater part of the urethral mucous membrane came away with it. This indicates the intimate relationship between the growth and the urethra.

Professor William H. Welch, of Baltimore, to whom the specimen was submitted for examination, reported as follows:

"Examination of microscopical sections from urethral tumor submitted by Dr. J. F. Percy."

"While I cannot make out very satisfactorily from the sections the exact topographical relations of the tumor to the urethra, the character of the tumor is apparent. It is composed of a connective tissue stroma rich in cells and of alveoli of irregular size and shape, filled with epithelial cells of a rather polymorphous or transitional type, but on the order of flat rather than of cylindrical cells. There are numerous karyokinetic figures, many of which are irregular and unsymmetrical. One set of sections shows a papillomatous or villous surface of the tumor. There is extensive necrosis of the tumor along one edge. There is in many places a rich infiltration with polynuclear leucocytes. In places, especially near the papillomatous parts, the alveoli are not completely filled with cells, but show more or less of a lumen. The tendency is toward a cylindrical type of cell."

"There is a canal [urethra] running along one side of the tumor lined with cylindrical or transitional epithelium, and continuous with a surface covered with laminated flat epithelium covering irregular outgrowths of connective tissue."

"*Diagnosis.*—Epithelioma of transitional-celled type."

of epithelium harmonizes with the origin of the tumor from urethra or bladder."

WILLIAM H. WELCH.

Diagnosis.—The diagnosis of primary carcinoma of the urethra is not an easy problem. The gynecological literature I have consulted contains nothing on the importance of distinguishing between a possible malignancy and some other pathological entity. The failure to make this distinction will, I think, account for the statements of some recent writers, that carcinoma in this situation is not so uncommon as formerly thought. In this way can the statement of my New York and Philadelphia correspondents, with their respective reports of ten and twelve cases each, be accounted for. True, they do not claim any, or at least all, of these as primary, yet when the rarity of even secondary carcinoma in this situation is known, the enormous individual experience of these gentlemen is most unusual. It can be explained only on the ground of a mistaken diagnosis in the majority of their cases. As much can be said of the thirty-eight out of my 100 correspondents who gave me a report of 58 published cases observed by them. But the greater number of these cases were so imperfectly studied and reported as to be useless for our purpose.

Every abnormality of the female urethra, one of four positions, should be thought of as involving the correct diagnosis. These are, in the order of their importance—caruncle, syphilis, cancer and lupus. Lupus (*Esthiomène*) can be dismissed without consideration at once, because no case has been recorded in which the *primary* focus was discovered, either in the urethra or in the vulva. There is but one case recorded, that reported by Chiari⁵² (and by Hyde), in which there was even a secondary involvement of the external genital apparatus. This leaves for our consideration, caruncle, syphilis and cancer. Of the diagnosis of caruncle, little need be said before this Society except perhaps, although benign in its course, it often causes more suffering than does cancer. The latter frequently not being noticed until well advanced. However, I do not want to leave the impression that the determination of caruncle does not involve as much responsibility as any other diseased condition liable to be met in this region. In my own case the first diagnosis of caruncle, and its treatment as such, led to the loss of valuable time from July to the following November. I cannot find that any special effort has ever been made to study the relationship, if

any, of cancer to caruncle. There may have been such a connection in the early history of my case, but the cancer of the tumor overshadowed everything else when it came time for its removal.

Syphilis offers more of a problem in the correct diagnosis, a possible malignant growth in or about the urethra, or other one condition that may appear there.

It would seem, and unfortunately, that specific treatment does not always aid in clearing up the diagnosis. I have been particularly impressed with this through statements made by my correspondents who have honored me with the report of their experiences. This led to the interrogation of the dermatologists, and I found that they, too, are not agreed as to the diagnosis of the lesions found here, even when syphilis is suspected as the basis of the trouble.

I will quote from but four of my correspondents, whose experiences are typical of a number who have written to me. Drs. E. C. Dudley and A. I. Bouffleur, both of Chicago, are among my one hundred correspondents. They replied that they had met no cases of urethral carcinoma in women. That the lesions observed by them in which the appearance of the lesion suggested malignancy, had in every instance yielded to specific treatment. Dr. Dudley stated that his case had every appearance of carcinoma of the urethra, but a complete cure followed the use of iodide of potassium. Bouffleur makes the same report, saying that the "suspicious ones have in every instance proved to be specific." So much for the cases in which the diagnosis was between malignancy and syphilis, and in which specific treatment made the diagnosis positive.

On the other hand, Dr. H. C. Crowell, of Kansas, reported in a personal letter a case in which there was a cerating growth on the vulva. This had apparently involved the urethra secondarily. The lesions of both the vulva and urethra were treated by the application of resorcin and pure pepton, with remarkable results." The woman lived over a year and was free from recurrence in the abdomen. The inguinal glands were not involved at the last. The urethra and vulva remained healthy. No post-mortem or microscopical examination was made. It is difficult to classify this lesion because of the results of local treatment, followed by death from (apparently) abdominal recurrence of the disease. The tumor of the vulva which I found reported by Mme. Boivin in 1828 also y

treatment by opium suppositories introduced into the urethra. When it had almost disappeared under this treatment, the little that remained of the mass was removed with curved scissors. This case also as stated above died of cancer of the stomach.

Another of my correspondents, Dr. Mitchell,⁴⁵ of Denver, reported a case in which "there was a growth about the posterior wall of the urethral orifice size of lima bean, which had the translucent appearance of a myxoma." There was every evidence of syphilis and the urethral tumor continued to grow until vigorous and persistent syphilitic treatment reduced its size, but which did not cause it to disappear.

The elaborate and exhaustive article by Landau⁴⁶ on "ulcus rodens" should be consulted in cases where the lesions persist regardless of local treatment. Landau says that "these swellings resemble pointed condylomata, are soft to the feel, bleed very readily when touched and often fill the urethra as far back as the neck of the bladder." He considers the ulceration to be syphilitic in character; but he looks upon syphilis as only the foundation on which the ulcerative process, the exact nature of which is unknown, develops itself. "A perfect cure is never to be looked for, and a complete cessation of the destructive process is very rare."

Hyde,⁴⁷ of Chicago, in an article on "The Syphiloma of the Vulva," published in 1889, denies that the lesions described by Landau can be anything but a manifestation of syphilis, and intimates that appropriate treatment for syphilis would demonstrate this to be true. In March, 1900, Dr. Hyde informed the writer that neither he nor his colleague, Dr. Montgomery, had ever seen a case of primary cancer of the urethra in the female. In his letter the doctor referred to the article just quoted and also to one by Dr. Robert W. Taylor, of New York, on an allied subject, and closed his letter as follows: "Between these two you will discover how we look upon many of the cases of so-called 'cancer' and 'lupus' ('Esthiomène'), involving this region in general." The articles by Hyde, Taylor and Landau cannot but be helpful when cases such as those reported by Drs. Mitchell and Crowell are up for diagnosis. Taylor's article on "A Hitherto Undescribed Form of New Growth of the Vulva"⁴⁸ is undoubtedly a distinct addition to our knowledge of the new formations possible of growth in the genito-urinary region. The author states that this form of growth "is different in all its features from syphilitic lesions of the skin and mucous membranes,"

and that it is not lupus and further, that "it has no appearance in common with epithelioma." Under the head of treatment Taylor states that, "Though of simple and benign nature, new growth is as rebellious to treatment as are the most malignant forms." "It, however, may be said with some satisfaction that it does not give rise to the secondary metastatic growths which are such frequent complications of the latter."

I cannot find that more cases of this character have been reported since Taylor's last article in the January (1894) number of the *American Journal of the Medical Sciences*. In this article he suggests total excision as a proper procedure, but does not state that it has ever been attempted as a method of treatment.

Prognosis.—As to this, little need be said more than that the subject is cancer. In this particular region it is interesting to us because of other pathological conditions with which it is often confounded. Some of these are as rare as cancer, if not rarer, lupus for instance. The expectancy of life in primary cancer of the urethra is no greater (nor less) than when the disease invades other tissues of the body. From its insidious development, an early diagnosis is frequently missed. Cases, as pointed out before, and emphasized by Battle, will often produce more local disturbance and bring the patient earlier to the attention of the physician than will a morbid growth of the seriousness of cancer.

Before closing this part of my paper, I want to put on record a case in which the death of the woman was caused by repeated hemorrhages due to a "fungoid carcinoma" about the mouth of the urethra. This case was reported to me in a letter from Dr. Henrotin of Chicago, in March, 1900. The patient was admitted to St. Luke's Hospital in a dying condition. She died but three days after admission. The only lesion found was the above.

My work as represented in this paper has been merely a painstaking search through the literature and by correspondence to know whether cancer of the urethra in the female is as rare as I was first led to believe. I think that I have shown that it is. More than this, I have tried to call attention to the more important pathological conditions which may be confounded with cancer of the urethra. I cannot find that either of these has ever before been attempted. In these respects I trust I may have rendered some service.

Treatment.—Here again I may repeat that my subject is cancer. In the present state of our knowledge the axiom of free wide excision still remains true. The earlier and the freer

sewhere, the longer the immunity. Here also all the lymphatics should be removed. Indeed, one of the obscure subjects to be cleared up about cancer of the urethra is the line of spread of the infection through blood vessel and lymphatic when the primary focus is in a given situation. Some undoubted primary cases seem to have passed superficially through the skin to involve distant parts. Again, other cases apparently having a local situation in the urethra, have manifested their continued growth by secondary involvement only of the deep pelvic lymphatics. The use of the cautery as an operative aid should, according to Ehrendorfer, be abandoned because it does not control hemorrhage, healing is delayed and it is impossible to cover the wound with urethral mucous membrane.

The making of an artificial vesico-vaginal fistula has been found necessary in some otherwise inoperable cases.

A supra-pubic urinary fistula has also served a useful purpose in the closure of the urethra, either by operation or when complete blocking has occurred from the growth. The method Witcomb advocated in gastrotomy is the one usually considered most reliable. I have also obtained excellent results in two cases of carcinoma of the base of the bladder by pulling the apex of the tumor as high as possible and fastening it. The small opening was maintained by the passing of a sound. The bladder was irrigated every three or four hours by bending over and allowing the urine to escape into a dish held over the fistulous opening. One of these cases was very comfortable for over a year and the other for seven months.

In the extensive operations, that of Zweifel can be considered as a type of the most radical. In the cases where secondary invasion is still limited, the technic described by Brothers, offers the greatest chance for good functional results. If this is not possible, paraffine injections to restore the lost contour of the bladder may be attempted, as quoted from Gersuny⁵³ by Vineberg. As to the methods other than the knife now being considered by the profession in the treatment of cancer, I have no word for this to-night.

Together with all good physicians the world over, I can but express the hope that we may be at least near the solution of the successful treatment of cancer, no matter in what region of the body it may be found. Science is waiting for a man to show the way to us all, whether he be embryologist, histologist, pathologist, bacteriologist or physicist, he will be right royally welcomed.

TABLE OF CASES OF UNDOUBTED PRIMARY CANCER OF THE FEMALE URETHRA, 1848-1902.

| Case | Reporter. | Diagnosis | Duration. | Treatment. | Operation. | Results. | Tumor. | Remarks. |
|------|--------------|-----------|-----------|--|--|--|--|--|
| 1 | Von Winckel. | 1878 58 | ? | Surgical. | Resection of urethra. | No recurrence end of 3 years. | | |
| 2 | Thomas. | 1877 29 | 2 mos. | Surgical. | Resection of urethra by galvano-cautery. | No recurrence after some months. | | |
| 3 | Low. | 1888 46 | 2 yrs. | Surgical. | Excision of tumor. | No recurrence at end of 6 months. | | Several operations for recurring urethral polypi. |
| 4 | Jobert. | 1882 56 | ? | Surgical. | Excision of tumor. | ? | | Died later in Holland of cancer of the stomach. |
| 5 | Mme. Boivin. | 1828 40 | 3-4 yrs. | Urethral suppositories containing opium for 15 days and excision with curved scissors. | | | "Fungous tumor of the primary meatus." | |
| 6 | Hottinger. | 1866 65 | ? | No treatment. | | | Pavement epithelioma carcinoma. | At last report patient was in bad condition and failing; at first examination inguinal glands not enlarged. |
| 7 | Reed. | 1895 64 | 8 mos. | Surgical. | Wide extirpation of the growth. | Good condition for 7 mos.; recurrence in stomach. | Melano-sarcoma. | Died 1 year and 8 months after discovery of growth. |
| 8 | Vineberg. | 1900 36 | 6 mos. | Surgical. | Wide extirpation of the growth. | No recurrence up to Jan., 1902. | Flattened celled carcinoma. | Inguinal glands not involved. |
| 9 | Miller. | 1900 52 | 2 mos. | Palliation. | Vesico-vaginal fistula established to secure drainage. | Died in 8 mos. from first examination. | | Patient postponed operation for months and when next seen growth was so extensive that nothing but palliative treatment was indicated. |
| 10 | Beigel. | ? | 50 yrs. | Surgical. | Extirpation with scissors. | Final result not stated. | Sarcoma of urethral orifice. | |
| 11 | Ehrendorfer. | 1891 52 | 6½ yrs. | Surgical. | Tumor was removed without touching the inner urethral mucosa. | Patient completely cured. | Round celled sarcoma. | |
| 12 | Galabin. | 1896 3 | ? | Cautery. | Removed by galvano-cautery. | Died in one week after leaving hospital. | Pedunculated myxo-sarcoma 3 inches in diameter | |
| 13 | M. Price. | 1894 ? | ? | Surgical. | Free excision of the growth. | Died of acute pneumonia 2 years after operation; no recurrence. | Epithelioma. | Developed in woman subject of complete laceration of the perineum of 40 years' duration. |
| 14 | Oviatt.* | 1893 47 | ? | Surgical. | Preliminary supra-public cystotomy in 3 weeks resection of entire urethra. | Comparative comfort for 10 months; recurrence in bladder and death 4 | Carcinoma. | Began as hard nodule, involving lower segment of the meatus; this was in June; September |

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CONSTIPATION AS AN ETIOLOGICAL FACTOR IN ECLAMPSIA.¹

BY

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WE are still as much in the dark as far as the etiology of eclampsia is concerned as when we were students of medicine. With the many discoveries that have been and are constantly being made by the bacteriologist we have strong hopes that in the near future we may count this long delusive foe among the captives. In looking over the long list of supposed etiological factors in eclampsia we can easily, for strong reasons, reject many of the theories advanced and come to the conclusion that it is a specific poison of special origin. The causes that have been given such as obstructive nephritis, increase or decrease of thyroid circulation, have been relegated to the days of unscientific medicine, because of obstructive nephritis alone was a cause, why would not eclampsia seizures occur in nephritic calculi or in traumatic constriction of the ureters. Besides, true eclamptic convulsions of the status epilepticus variety have occurred in the early months of pregnancy

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and have even been observed in the fetus of the eclamptic. The kidneys themselves cannot always be the offending because it is not an uncommon experience to have patients excreting large quantities of albumen with deficient uric acid, edematous extremities who go along to full term without mishap. So that there must be some cause present in the individual subject that is not present in all cases where kidney disease exists. Perhaps if we stop for a moment to look at the convulsion that is present, we may come near to the cause. The convulsions that are mild and of short duration do not involve the system very much, but when they are severe and protracted the venules of the face become enormously distended and the convulsions increase in intensity merging into the status epilepticus. The only other convulsion that resembles it is the convulsion of acute alcoholism, and the treatment is practically the same.

The pulse is the predominating factor in suspected eclampsia. The varying degrees of pulse tension places the observer on his guard. The physician of the old school was so far wrong when he carried his box of cathartic pills with him more frequently than he did the forceps. Only last week I was visiting a patient whom I have assisted in delivery on several occasions. She was bequeathed to me by an alumnus of this University, Dr. Buckmaster, when he left us to accept the chair of Gynecology at the University of Virginia. During each one of her pregnancies the kidneys secreted from 25 per cent to 40 per cent more albumen by volume, but with no other alarming symptoms. At the same time, along with the secretion of albumen, the specific gravity was lowered and the pulse assumed a degree of tension that was not present before. The labor went on uninterruptedly but the pains and tension of the pulse kept up.

Here, then, was a pulse to study. I put her on cathartics and insisted on seeing the stools each day. The tension kept up, but there was long standing foreign matter in the intestine. After twelve days she had strong catharsis, and up to the twelfth day, notwithstanding the frequent evacuations, she passed off a quantity of dark, scybalous masses. She was on a limited fluid diet all the while, so that no one knows till he investigates, how much foreign material the colon can store away, nor the damage done by it in passing from its absorption.

No one will doubt the close association between renal and intestinal diseases, not those intestinal diseases where there is a structural change, organic diseases, but where there is a functional

change occasioned by malassimilation or a disturbance of digestion by miscellaneous indigestible articles of foodstuffs. As an example, I need only refer to the intestinal diseases of children, where an examination of the urine will show a lowered specific gravity and the presence of albumen.

Or again, in the adult whose sole complaint for a time is constipation, the gradual appearance of albumen is noted if the intestinal chemical changes are not rectified. How this close association is brought about is as yet not explained. Whether it is due to disturbed metabolism, toxemia, or destructive cell masses that are carried from the intestines by the blood and deposited in the liver, producing areas of necrosis and further finding their way to the kidneys, producing a destruction of the parenchyma, is more than we can at present explain. At all events there are some that believe that focal necrosis in the liver in eclampsia cases appear too often to be regarded as other than pathognomonic. Whether in these fatal cases the cause of the convulsions may be found in the pathological changes in the liver primarily and secondarily in the kidney, or vice versa, is open to question. Certain it is that pregnant women as a rule have a capricious appetite and indulge in foodstuffs that they would never crave when not pregnant.

The men who are giving their time and attention to the study of intestinal diseases have as yet not made sufficient advances to justify positive conclusions, but they are in a field of study which will result in discoveries that will clear away many difficulties, and I feel sure eclampsia is among them.

Most of the cases under my observation occurred during the winter months; whether that was due to the fact that skin secretion was less or due to the lack of sufficient open air exercise, I do not know, but it has led me to consider that perhaps there are many factors that produce the convulsions, that perhaps though the symptoms are manifestly those similar to uremia, the causes may not primarily be nephritic, but rather an accumulation of the same causes that produce uremia in any adult, only of a more aggravated character.

The following is a report of some of the cases at the Maternity Department of the New York Foundling Hospital one year ago.

During January and the early part of February the examination of the urines of the waiting-women showed in about five-sixths of the number the presence of albumen, ranging between a very faint trace and abundant quantity, with a lowered sp.

gr.; in some cases running as low as 1004 to 1010, occasionally 1001. There were between thirty and forty women constantly present in the institution, and practically all primagravidæ. In addition to the albuminaria about one presented other toxic symptoms: headache, nausea and vomiting, edema of legs, and increased arterial tension. There were eighteen of these latter cases, and they were all placed in treatment. In only one case were the symptoms severe enough to warrant the induction of labor. She was a poorly-nourished primagravida, æt. 17 years, and nearly full term. Though passing between 80 and 140 ounces of urine daily, with specific gravity ranging between 1004-1009, she exhibited marked nervous symptoms—apathy merging at times into marked stupor and accompanied with a clay-brown tongue and moderately increased arterial tension. Labor was induced by the insertion of a bougie into the uterus with strict antiseptic precautions. In this case labor terminated uneventfully thirty-two hours later, she being delivered of a healthy, well-nourished child. The puerperium was normal, the urine promptly clearing up.

None of the other cases were severe enough to cause marked apprehension. They were kept in bed on exclusive milk diet, encouraged to drink plenty of water; "Imperial" drinking water q. 6. h. and nitroglycerine as indicated to reduce the tension of the pulse. Though it was possible in this way to remove the symptoms and the edema, the trace of albumen never disappeared. In only two or three cases was there anything more than a trace of albumen present. Of all the patients there were eight cases of eclampsia. Three of these occurred previously without warning and their histories are detailed elsewhere. There was a patient who had been in bed for albuminuria for several days and was apparently doing well, until a sudden diminution of the urine was rapidly followed by convulsions. She was the only death among the mothers; of the children there were two still-births and one premature infant, who died later. Of the still-births, one may have been dead some time prior to delivery, as it was much macerated, and the mother stated she felt no fetal movements for two weeks previously, so the death of the fetus may have been the determining cause of the convulsions. In only one of the eclamptic cases was there a large amount of albumen present; in the others there was more than a trace found at any time. The sp. gr. always ran far below normal.

There was no *striking* reason why five-sixths of the waiting-women should have albumen and so many show other toxic symptoms. The ordinary routine of each patient—diet, baths, exercise, ventilation, clothing, etc.—apparently existed as in previous cases. The presence of constipation among the women was, however, very well marked, but whether these women were more fortunate in this regard than the preceding inmates, of course, cannot tell.

CASE I.—*Copied from Dr. Ryder's Monthly Report.*—In this case the urine had shown only a trace of albumen the week previous. Two days before the seizure it increased 3 per cent by volume but there were no signs of immediate impending danger. The attack came on slowly with a convulsion with two more in rapid succession. Each one was quickly stopped with chloroform. The patient was given nitroglycerine 1/50 hypo., bowels were washed out and then irrigated with hot salt solution. Croton oil M j was given by mouth, and chloral gr. xv and opium gr. xl with mag. sulph. $\frac{3}{4}$ I were given by bowel. The patient was made to sweat freely with a hot pack. The vulva was then scrubbed, the vagina cleaned and a bougie was inserted into the uterus to the fundus. The vagina was then packed, etc. Morphine M vi was given hypodermatically and nitroglycerine q. 4. h., hot packs and rectal irrigations were given through the night. In the morning a fourth convulsion occurred. This was quickly stopped with chloroform, and nitro-glycerine 1/50 was given, hot pack given at once. The patient was then put on the left side, and on removal of the packing the cervix was found to be dilated four fingers. This was further dilated with the fingers and the membranes were ruptured and a podalic version with a breech extraction was performed. The child was a seven-and-a-half months' fetus, weighed three and a half pounds at birth.

Subsequent History.—In spite of all treatment a large amount of albumen persisted in the urine, varying between 10 per cent and 30 per cent by vol. Patient left the hospital feeling pretty well but anemic and poorly nourished. The child died about ten days after delivery.

CASE II.—Lizzie, 25, æt. 17 years. Primigravida. Last menstruation May 20, 1901. No fetal movements felt for past two weeks. Fetal heart sounds never heard. In the morning of January 3 patient complained of nausea and vomiting and slight headache. Moderate edema feet and ankle. Put in bed, milk diet, calomel purge and bitartrate water $\frac{3}{4}$ viii q. h. and nitroglycerine 1 : 100 q. 3 h.

At 3:30 P.M. same day patient suddenly seized with a convulsion. Chloroform administered to control attack.

Examination revealed a seven and one-half month's pregnancy with child L. O. A. position, no fetal heart sound heard of mother rapid and with marked increase of tension. Catheterized—few ounces urine, trace albumen, low specific gravity. She soon regained consciousness after first convulsion. Croton oil M iii in glycerine was placed on back of tongue. Strychnine injection beneath breasts; hot pack; nitroglycerine 1/100 gr. in hypo. and a single dose of majendie M v hypo. A small enema given, but retained. About one hour after first convulsion another occurred; moderately severe. At 7:30 another but less severe convulsion; pulse not so strong but tension less marked.

She was at this point removed to the operating room, and an incision inserted with usual precautions; 3 ix urine removed by catheter.

On removal to bed, surrounded by hot blankets and slight ether anæsthesia produced, patient became exceedingly restless, and was violently about the bed. Majendie M viii succeeded marginally in controlling her. At 10:30 no movement of the bowels had occurred in spite of an additional dose of Croton oil M ii, and a small injection of

Mag. sulph., 3 i.

Nux. vom., Mv.

Aquæ, 3 v.

was administered.

About this time occurred the fourth and last convulsion. The strychnine injection was followed in a few hours by several smaller ones. At 11:45 a second bougie inserted alongside the first.

During the early morning hours of the next day respiration returned, and chloral gr. xx, sod. brom. gr. xl, per rectum.

At 6:30 A.M. cervix admitted two fingers. Patient remained quiet during entire day, took considerable water and some food. Perspiration, perspired profusely and passed about 3 xx urine containing but a trace of albumen. Arterial tension much improved. Cerebral condition fairly normal: no restlessness, no irritability, no stupor. Slept at intervals.

In the evening cervix admitted three fingers; patient remained quiet, slight pains at intervals. Temperature 102° F., pulse 100, respiration 24. Bougies removed. She passed a good night.

3 Liii urine in the twenty-four hours.

January -6.—Patient in good general condition; no convulsive symptoms. Slight uterine pain at rather long intervals.

admitted 3 + fingers; head in L.O.A. Excepting slight rapidity of pulse patient remained fairly normal all day.

At 10:45, second stage, pains began, membranes ruptured, and thirty-five minutes later was normally delivered of a seven-and-a-half months' macerated fetus. Placenta came away normally; it shows marked fatty degeneration, and in one portion a mass of fibrous tissue the size of a walnut.

Puerperium was normal in every respect; temperature never rising above 99.2° F. She passed considerable urine for several days. (See Temp Chart.) A trace of albumen persisted in the urine for about two weeks.

CASE III.—Annie, 32, æt. 20 years. Primagravida. Full term.

Patient presented herself in second stage of labor. Previous to this she failed to come under observation, apparently through lack of symptoms, though a waiting-woman in the hospital. As she was being lifted to the operating table for examination she was seized with eclamptic convulsions. After cessation of convulsion, vulva was quickly disinfected and patient examined. Cervix was found fully dilated and head in mid-forceps position. Position of child was L.O.A. Pains fairly strong. Without warning she was again attacked with an extremely violent convulsion; chloroform administered; fetal heart sounds slow. Urine by catheter § iii showed trace albumen. Forceps was applied and child rapidly extracted in good condition. Placenta came away normally; uterus contracted firmly.

Soon after removal to bed another but less violent seizure occurred. Majendie M viii given by hypo.; nitroglycerine 1:50 q. 4. h. mag. sulph. § i q. i. h. until effectual; saline infusion under the breasts and a hot pack.

Patient perspired profusely under the hot pack, and increased arterial tension gradually diminished.

Urine remained diminished in quantity for several days and then rose above the normal. A trace of albumen remained for about a week. Otherwise puerperium was normal.

CASE IV.—Mary, 7, æt. 18. Primagravida. Full term.

On January 19 patient's urine presented trace albumen and spec. gr. 1010. Examination of patient showed a pulse of increased tension and slight edema feet. Slight headache, bowels constipated; no nausea or vomiting, no ocular symptoms.

She was placed in bed, milk diet exclusively, nitroglycerine 1/100 q. 2. h. and active catharsis, bitartrate water § viii q. 6. h. She soon began to pass a very large quantity urine, but of

very low specific gravity. On January 20 specific gravity was 1004 and marked trace albumen. On January 21 notes say: "considerable urine; no headache; no eye symptoms; no edema of feet; no tension of pulse. Spec. gr. 1004, trace albumen."

January 22.—On rounds, patient apparently in good condition, no nervous symptoms, bowels moving freely.

During day urine suddenly diminished in quantity, and at 6:15 p.m. she was seized with an eclamptic convulsion. Chloroform was administered. Mag. sulph. $\frac{3}{i}$ by mouth given and vomited. Oil Mz iii given and retained; hot pack; saline infusion into breasts and chloral gr. xv and soda bromide gr. xxx by rectum and nitroglycerine 1/100 q. 4. h.

At 6:15 second convulsion. Examination of abdomen and vagina revealed a full-term uterus with child in L.O.A.; an edematous cervix barely admitting tip of finger.

At 8:30 patient removed to operating room, genitalia examined, and cervix dilated with finger sufficiently to admit of a No. 10 sized C. de Ribes bag. Two more convulsions occurred in quick succession, and chloral gr. xv and sod. brom. gr. xxx again administered by rectum.

At 11:30 P.M. bag expelled and medium bag inserted. At 12:30 P.M. removed by catheter at 8:30 $\frac{3}{viii}$ —trace albumen (Spec. gr. 1010.) About 12 P.M. patient became markedly worse. Marked prostration, rapid, tense pulse, and convulsions occurred frequently that the necessity of continually administering chloroform seemed imminent. Bowels moved freely.

At 1:45 A.M. January 23 chloral gr. xxx and sod. brom. gr. xxx injected into rectum. This seeming to produce no effect, Mag. sulph. gr. $\frac{1}{4}$ given by "hypo." Following latter, convulsions ceased absolutely. In all she had thirteen convulsions from 10 P.M. until 2:30 A.M.; less than twelve hours.

She was unconscious from about 10 P.M., never recovered from the coma between the convulsions. Several beginning convulsions were aborted with chloroform.

At 3:15 A.M. the medium bag was pulled through the cervix and the largest bag inserted. This was pulled through the cervix at 7:15 A.M. Patient was then removed to operating room. Examination showed head to be L.O.A. No fetal heart sounds audible. High forceps applied, and with fairly strong traction succeeded in extracting a dead full term and well-nourished fetus. Placenta came away normally. Mother's condition at this time was extremis; she was found in profound coma.

low slow respirations and very rapid, feeble pulse. Cardiac stimulants and oxygen very freely administered. Uterus contracted firmly. Removed from table at 8:30.

Following delivery patient improved, heart action became firmer and stronger, breathing improved and coma diminished, patient opening her eyes and looking about the room.

At 11:55 sudden cardiac failure supervened, and in spite of all efforts patient died in a few minutes. No autopsy.

CASE V.—About 30 years of age. Primigravida.

The urine showed only a trace of albumen with a spec. gr. of 1.020. At the repeated analyses up to the first week in January, the spec. gr. began to diminish but the quantity remained normal. Slight edema of the feet with some swelling of the lower lids became manifest in the second week of January. Labor was within two weeks of term, but with the lowering spec. gr. headaches, restlessness and increased arterial tension labor was induced. Labor was induced by giving quinia sulph. gr. x and with $\frac{1}{2}$ of castor oil at night. The following morning the cervix was one finger dilated, with no contracting pains. Ten grains more of quinine was given. An attempt to introduce a bougie was made, but the fetal head had engaged, refusing to pass the bougie. At six o'clock I was called suddenly and found that uterine contractions had set in, and I was congratulating myself that we were going to escape a convulsion. The os had dilated, admitting three fingers. Suddenly, without any warning, a violent convulsion came on, and followed in a few minutes by another. No time was lost in doing a medium forceps. Without any trouble a healthy child was born, weighing seven-and-a-half pounds, without any injury to the mother. Within twenty minutes the placenta came away completely. Half hour afterwards another convulsion came on, followed again in an hour by another. A trochanter was used to limit the convulsions, hot pack applied, glycerine gr. 1/50 q. 4. h., saline infusions and morphine to insure sleep.

The next convulsion came on in just twenty-four hours, still another in thirteen hours, so that in all there were two anti-partum and four post-partum convulsions.

The patient was kept in bed on a milk diet for a month, and finally had a good recovery. Her eye symptoms were the last to leave.

The small retinal hemorrhages were absorbed only slowly. The following is a letter from Dr. Frank Doulon of a case of seven-and-a-half months' pregnancy.

CASE VI.—Mrs. B. “I first saw her on the evening of the 22nd. In the afternoon of same day she had a severe hemorrhage. She had been complaining of occasional flowing for several days. I found her with $102\frac{1}{2}^{\circ}$ F. and fast pulse. The cervix was dilated, but not enough to allow the finger to enter to the os of the uterus.

Being late in the evening I tamponed with fresh, sterilized absorbent gauze. Early next morning, April 29th, I cured her. From that on the temperature went down. On Wednesday it was normal and remained so until the following Monday, when it rose to 101° . It remained about that until Friday when it rose to 103° , and I gave an intra-uterine injection of ergot after which she had a violent chill and fever. About 10 P.M. she had a severe convulsion, after which one followed another. Morphine hypodermically had no effect. It was necessary to use chloroform off and on until about 10:30 P.M. almost six hours from first seizure, to control the convulsions. I first saw her next day, Saturday), her temperature was 101° . Examination of urine on Friday showed no albumen; on Saturday a slight trace. She continued to have fever until she died on the 23rd. Examination of uterus showed nothing septic.”

Just to say a word or two about the treatment. We have kept her roughly alive to the exigencies of the condition and record the fact that the sooner the uterus is emptied the better the chance the patient has for her life, but we have some consideration for the life of the child. So that when a case comes to us with the symptoms are not urgent, and that does not show the arterial tension, we dilate progressively with the de Ribes tampon where the convulsions are active and the patient has not entered labor, we select a prominent vein and let enough blood escape to relieve the arterial tension—where the convulsions are active and the patient in labor, it is our custom to complete the second stage and allow a copious flow of blood to escape before completing the third stage. That we look upon as the most natural and efficient method of depleting.

I am indebted to Dr. Frederick J. Hughes, the house physician at St. Ann's Maternity, for his able assistance in carrying out my ideas and for the notes he has given me of the cases occurring at the hospital.

It is noticeable that for the past four years all the cases of eclampsia that I have had have occurred in the winter months between January and March, and all in patients who

obstinate constipated habit. Last year two patients at the Maternity received boxes of good things at the holidays, and in twenty-four hours were eclamptic subjects. All the cases that I have reported were constipated and had no exercise in the open air for weeks before the attacks. So that in the light of my case I am inclined to look to the liver as being the source of the toxic influence that produces the convulsions.

I am sorry we could not obtain permission to perform an autopsy on the case that died, because in her case the convulsions were numerous with only short intervals, and the death was sudden. It looked as if there would be evidences of fecal necroses in the liver and possible hemorrhage in the dura.

105 MADISON AVENUE.

A PLEA FOR "BLOODLESS" SURGERY IN GYNECOLOGY.¹

BY

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THE object of this paper is to call renewed attention, on the suggestion of recent personal experience, to the value of pure manipulation in the treatment of some of the pelvic disorders of women, and, incidentally, to the like utility of certain other equally less devitalizing methods of securing results usually sought through abdominal or other section.

The term "bloodless surgery" is used rather as a convenience in differentiation, but seems not unwarranted in that it has been received with apparent favor in connection with some recent demonstrations of similar import.

Certainly the maneuvers herein considered are "bloodless" in a sense, and they belong to surgery proper for the reason that their successful application necessitates a practical, working knowledge of the anatomy, structural and relational, of the parts concerned, and the disorders involved include consideration of the cardinal surgical features:—dislocation and adhesion and the consequent needs of reduction and retention.

A thorough conception of the chief principle involved is so vital, and a constant perception of it so absolutely necessary to a complete and satisfactory issue, that I must be pardoned for

¹Read before Chicago Gynecological Society, Jan. 16, 1903.

making constant reference to it during my description of the elements of its application.

It should be understood that the theory involved in the use of these "bloodless" methods for securing radical cure of poise and function, refers to something decidedly different from the mere mechanical stimulation of ordinary "massage." It braces the idea of a virtual, though temporary and partial, devitalizing, abrogation of anatomical and functional integrity, and recognition of the ability of the natural reparative forces to subsequently to reconstruct, under proper restraint and direction, in such way as to secure amity of relationship and physiological activity. The method herein advocated is based on that principle, and therefore has in view the capability and willingness of the body's reconstructive energies, when properly aroused, to re-establish and maintain relatively the structural and functional equilibrium of the parts and organs, and demands a reasonable conception of the nature of normal anatomical relationships and conditions, but not of specific morbid conditions; although in the latter with reference to the more to the degree and persistence, than to kind or method of manipulation. While I shall, therefore, make no detailed reference to cases to emphasize the value of the methods adopted, I shall not attempt any formal, systematic description or classification of pathological conditions in their specific relation to the therapeutic steps, I shall refer to instances of each to illustrate the principle necessary to delineate the essential features of both the principle and its application.

My personal experience in this line of effort has been almost exclusively to that type of the disorders of the pelvic organs involving phases of dislocation, adhesion and chronic inflammatory changes, several of these seeming to appeal more strongly to the requirements, to the primary therapeutic conception. The laceration of tissue unquestionably induces firmness and stability of fibre in subsequent regeneration and rehabilitation, and favors redirection of formative effort under proper restraint. It is these indisputable facts of nutrition and growth which underlie the plain, and are the chief source of many of the effective results of well-directed, strenuous manipulation, not only in general therapeutics but in other departments of manual effort as well.

In none is this principle more applicable, as I believe, than in the field of gynecology. For this kind of procedure the pelvic organs present a relatively amenable location and accessibility. Aside from their accessibility, the tissues here involved

character fitting them for just this sort of manipulation and reformation. Their comparative independence, and the various attitudes to which they are more or less constantly and naturally subjected by the processes of ovulation and pregnancy, lends to the organs the advantages as well as disadvantages of structural mobility and change, and we find them so often spontaneously submitted to enormous variations in attitude and structural metamorphosis as to render them comparatively immune to the dangers of rough usage, in so long as opportunity follows for nature to exert her reparative powers. The tissues of the vagina, uterus, and all the organs concerned may be safely handled with a degree of roughness that assures not only an abundant supply of blood to the locality upon reaction, but also such a degree of distention and plastic effusion as will induce reparative action, and maintain its activity in a given zone under competent control. The constantly occurring results of neglected injuries attest the capacity of the tissues here as nowhere else to adjust themselves to changing circumstances, and go to show the enormous advantage obtainable through judicious supervision following the artificial production of similar states. With such pliability and inclination it is not surprising that intelligently directed disturbance of morbid conditions and imperfect tissue relations, coupled with subsequent wise adjustment and retention, so often result in the rectification of many disorders unamenable to less fundamental methods of relief. The result of a severe operation is often the restoration of functional good health in women, and they will argue for and recommend its advantages in many instances. They often undergo more injury during that process than any man would dare voluntarily to inflict, and with good reason care are the better for it.

In the first place, then, in pursuance of my own special course of observation and practice it may justly be said, I think, that a considerable operator in abdominal surgery has discovered that what unexpected ease a large proportion of visceral adhesions can be broken up. Slight manipulation with the finger and fingers alone suffices to accomplish the only purpose in view, and at least reveal the only apparent pathological condition save that of misplacement of one or more of the organs involved. If from such experience one will call to mind the pre-operative diagnostic features he cannot but be convinced of the possibility as well as desirability of attaining the same end by less destructive and less disturbing means. Bi-manual examination for diagnostic

purposes has revealed the possibility of bringing the all but immediate contact not only with all the organs of the pelvis, but likewise with all the several aspects of those organs. The elasticity of the abdominal parietes and of the tissues of the different pelvic inlets, under the relaxing influence of anesthesia renders it possible in just the desired cases to come in contact with the organs involved as not only to distinguish the morbid relationship, but separate with almost equal facility. Under section the points of attachment of such. This feature of time and again demonstrated to my own satisfaction and to that of onlookers, by observation through the abdominal wound. For this purpose a judicious selection of cases estimated above, during bi-manual palpation, is alone necessary in most instances. To those who protest against the advisability of accepting such pre-operative indications, I have only to say that the cultivation of such power and acumen in selection of cases indicated is the very essence of that surgical judgment upon which we must at all times depend, and upon which must rest the progress and reputation of our art in its practice.

It is just in the class of cases in which bi-manual palpation reveals the limited extent and immature nature of existing adhesions that we are justified in adopting the method herein advocated for the purposes of separation and restitution. Such information, with the reasonable exclusion of suppuration and such inflammatory conditions as would indicate hazard in extensive tissue disturbance, is a sufficient indication that complete separation may be safely effected by judicious pressure and traction. Pressure through the abdominal parietes, vagina and rectum are the principal conditions to which this feature of the operation is applicable, namely, those of attachment of the posterior vaginal pouch only, separation can be almost certainly attained by these means. With the one hand in the vagina the fundus of the uterus is pressed strongly upward and forward, while with the other hand that over the abdomen the lax wall of the latter is insinuated into the cavity until brought in contact with the anterior surface of the uterus. With extremely firm pressure and a slight downward movement any ordinarily simple adhesion will be broken. By then pushing the cervix backward and upward so that the uterine body lies with its front surface approximately in line with the inner hand, the outer repeats the former motion and the adherent peritoneum is stripped off. The ovaries and tubes are generally be in like manner rubbed loose. As before, the question of the legitimacy of the operation is involved.

blem of the individual case as a whole, but where it is indicated purely as a measure of restitution, and uncomplicated by need of any sort of drainage, it can often be as effectively sized as can any other procedure, not excluding section.

So much, then, for that phase of the subject. The far more important one is that of the possibility, without section and direct artificial reconstruction, of securing retention of the organs in a normal position whether previously adherent or not. Can any success of mere manipulation and temporary mechanical sustenance succeed in accomplishing such purpose in the face of actual plastic failures? Upon what basis of fact can argument be advanced in the affirmative? And so it becomes of real interest in the application of the theory under discussion is involved another and greater, because more far-reaching principle—the assumed ability of the forces of nature formerly referred to, when properly aroused and directed, to form such associations of tissue and structural change as discount in many an accepted and trustworthy sense the art of direct reconstruction in maintaining organic and functional balance. Observation shows that it often requires but slight variation in structural condition, in pelvic pose or attachments, when properly distributed, to secure a successful adjustment of the normal-sized pelvic organs, and that reduction to normal dimensions and weight is one of the acknowledged results of well conducted manipulation of even moderate degree. By that herein advocated there is induced primarily a rearrangement of existing activities, both morbid and normal, with consequent awakening of new formative effort under the guidance of skilled hands and brain, and resulting rearrangement in harmony with functional requirements.

To demonstrate in a more concrete and practical way, the uterus is usually the organ first considered. Its positional relationship is the first factor taken into account. Then follows the determination of condition of its associate ovaries and tubes. If there are contra-indications of the kind heretofore specified, existing adhesions are broken up in the manner indicated. Whether such adhesions existed or not, misplacements are corrected by manual effort. In case of uterine hypertrophy, or inflammation, or other degenerative change exists within a degree amenable to the proposed manipulation, the first step is to thoroughly divulse the cervix so as to admit the index finger. The end of the latter is used as a fulcrum upon which to bend the uterus and favor the correction of existing flexion. By it too the endometrium is subjected to the neces-

sary friction, and exuberant manifestations interrupted connection it is interesting to note the growing tendency to use of the finger instead of the much abused curette, in requiring analagous action. The finger is likewise used as retractor and for counter-pressure. The uterus is forcibly twisted, compressed and crushed to an extent indicating subservience of its circulatory and nutritional forces, and insures an alteration of the formative direction of structural energy and a possible change in the structural centre of gravity. All the ligamentous tissues are likewise picked out and broken nearly as possible within the focus of severe manual manipulation. The vaginal structures and the general peritoneal involvement are necessarily brought within the domain of these movements and participate in the tentative injuries inflicted—the sum of which is that, from being a flabby, atonic collection of tissues, the pelvic organs generally take on a lively, elastic character, a condition of passive congestion is superseded by one of an active character, and strength and erectility follow the resulting accumulation of organizing elements and constructive energy. Severe bruising favors effusion and interstitial hemorrhage, under favorable after-conditions, and that equilibrium of pressure which is nowadays recognized as the force which maintains the pelvic organs in their normal position, instead of any direct suspension.

Uterine misplacements continue yet as through all the centuries that have passed, the opprobrium of medicine. Surgery and medicine have both broken their lances in vain against this enemy of woman-kind. The most elaborate devices and surgery have been resorted to and come to grief, but at last history is about to repeat itself in resort to pebble and pressure, these in the hands of the giant of regular medicine accomplish their object through the simple means of enticing nature to produce by her own resources. There is a sect amongst us now, who, under the designated title it were scientific sacrilege to mention, are doing a work in this line productive of results astounding to the unthinking, and we should not fail to read the history on the wall. When hemorrhoids of severe type are effectively removed by manual dilatation and contusion of the veins, the hemorrhage of differing types controlled by digital friction, uterine peristalsis re-established by severe kneading, and cystitis as well as other pelvic inflammations resolved by direct exertion, it is time to recognize the value, under intellig-

of purely manual mechanics in the furtherance of our art. These things have been and are being done by what we term surgical efforts, while we continue stupidly to worship at the shrine of grim habit.

It is not enough, however, for the surgeon to perfunctorily advise or recommend. He should leave no manipulation of the sort to untrained assistants or other incompetents. It demands the profound knowledge and skill of which he is personally capable in order to success. He must be in the van of progress. The progressive medical man of to-day is utilizing more and more the products of the body itself for the relief of its own ills, and the surgeon should be no less active in compelling nature to a freer exercise of her own resources.

The natural corollary of the method thus far advocated is positional retention in position of the organs involved. This may be accomplished satisfactorily by the simple means of pessaries and vaginal tamponade. When properly applied they answer their purpose. They are rightly applied only when they steadily and unrelentingly maintain the uterus and its associate organs in their proper position during the period of reconstruction and adjustment following the manipulations. The Hodge pessary I have found a valuable adjunct, as likewise the intra-uterine stem pessary made to project sufficiently beyond the os externum to resist the upward pressure of the vaginal pack. This last mentioned is the most useful of all, and should be kept steadily in place, with necessary changes for cleanliness, for at least ten to fifteen days. Existing pain may be controlled by the use of analgesics. Nothing short of the firmest fixation will suffice to secure the needed result of stability in reformatory action and adjustment. The manner of tamponing is of importance, in order to secure the greatest elevation of the organs consistent with non-traumatic requirements. Instead of packing the vagina full of wool or cotton so as to create enormous distention in all directions, the introduction of one or other of these substances should be made in the form of folds of a long strip, pressed during introduction against the posterior wall of the passage, beginning high up in its vault. An excellent way is to thread the folds of gauze on a stiff wire, the upper end of which represents a ring to be thrown about the os of the cervix. The lower, sharp end is readily covered finally by several layers of gauze over it. This mode of tamponing is much more effective than any other for the purposes in hand. The pack in this way keeps the uterus and adnexa in almost faultless

position, while it does not distressingly distend the v
oppress the bladder, and gives all the mechanical stimu
sired for the former. A sore vagina temporarily is no
tage, but usually results in a thicker, more erectile and s
structure. In fact, a distention not too great nor too
tinued is itself a distinct advantage in most instances, i
it does subsequent bulk and radiation of pressure. T
naturally participates in the regenerative structural chan
follow severe handling, and we find its skeletal conne
stance improved in tone and usefulness.

But there are other conditions than misplacements
remediably amenable to this method of exciting rea
and reorganization. Chronic inflammation, neuralgias,
kinds of morbid changes in the ovaries and other struc
be favorably affected and more effectually subdued by
compression, stretching and friction sufficient in degre
duce radical changes in structure and renewed nervou
cular activity. Tissues which have lain for long in a c
mood, so to speak, are given to abnormal formative a
when aroused by opposition readily assert their birth
legitimate parentage and take on healthy action. We s
therefore, ignore the demands of justice and cut the g
tanglement by surreptitious removal of the offending p
out giving it opportunity for reform. How often do w
abdominal surgeon say that he found no pathology to a
the suffering complained of, but removal of the healthy
or breaking up of minor adhesions, or flushing the abdo
ity, sufficient at all events to remove the symptoms. H
stop to reason that the mechanical traumatism and its c
metabolic changes were probably the curative factors, an
result could just as well have been secured without sect
might he reason that in the cases not symptomatically
end might be accomplished by such a process of wholes
stretching as is included in the manipulative maneu
recited. As a matter of fact, the writer has taken a r
such occurring in his own practice and that of others a
plished more by making the pelvis a veritable hotbed of
any reparative effort than by any other means.

The functional adjustments on the part of nature
strain of steady, unrelenting guidance have been phe
encouraging, and indicate most forcibly the fact that r
tion under such terms has a supreme advantage over t

to concern only isolated tissues, under conditions which do not involve a sufficient area of vital disturbance. Instead of such disturbance being a source of weakness, it is a source of strength, even free from the elements of infection.

Inflammatory conditions and excessive tenderness are not by any means contra-indications for the application of the method of profound manipulation. Ofttimes, indeed, they are real indications of its advantage in a curative way. The same results which govern its application under other conditions likewise indicate the usefulness of the method in producing radical formative changes in these states of abnormal development and sense-derangement. The intimate structural and nutritional changes induced alter the character of innervation as well as circulation, and seem to restore co-ordinate impulses.

There is another phase of "bloodless" curative effort to which I should like to refer at greater length, but time forbids. Suffice it merely to say, therefore, that reference is made to the matter of treating pelvic accumulations by means of cauterizing drainage, and the use of the hypodermic syringe or aspirator for introducing into the pelvic cavity medicinal solutions such as iodoform emulsion and formalin under conditions of localized peritonitis. Such conditions, for example, as the apparently non-infective types of localized inflammation seemingly due to leakage from the ovaries under abnormal states of the dynamics of ovulation, in which the introduction of the former agent above mentioned is almost a specific, and infective types in which the latter seems destined to play an equally important rôle.

In conclusion, I may be permitted to say that I am speaking from a no mean degree of experience when I say that in a large proportion of cases of pelvic disorder complete health may be attained by resort to the methods herein advocated. All that is necessary is to study and practice them under an intelligent conception of their philosophy. "Bloodless Surgery" may not be their most appropriate designation, but the term will answer well enough for present purposes and serve to call needed attention to the demands of a principle that has at least earned its right to consideration.

IN MEMORIAM

T. GAILLARD THOMAS, M.D., LL.D.

BORN NOVEMBER 21ST, 1831. DIED FEBRUARY 28TH,

In 1852 a youth of twenty landed in New York Charleston steamer. He had little money, few acquaintances, no friends; but he was armed with an M. D. diploma from Charleston, S. C., Medical College, and his heart and hands full of enthusiasm for his profession, and a determination to accomplish great things in the future. Bellevue Hospital was a pest house of that day; an epidemic of typhus fever was raging, and the condition of things was deplorable. There were few professional nurses, and the number of doctors had been depleted by death and resignations; few were willing to occupy a position which meant almost certain death. However, through the influence of this memoir found in this very condition of affairs he obtained an opportunity. Being entirely devoid of fear, he made an application for a position on the force of doctors, which was promptly granted, and he at once began a career which, without a break, was a continuous series of successes to the time of his death.

Dr. T. Gaillard Thomas was born on Edisto Island, South Carolina, November 21, 1831. He was a lineal descendant of the Rev. John Thomas, who in 1794 was sent by the Church of England as a missionary to establish the Episcopal Church in South Carolina. His father was the Rev. Edward Thomas, a clergyman of the Episcopal Church. Through his mother he was descended from Joachim Gaillard, a Huguenot, who went to South Carolina after the revocation of the Edict of Nantes.

Dr. Thomas was educated in the Charleston, S. C., College, in which institution he left in the senior year to enter the College of the State of South Carolina, where he was graduated in 1852.

After completing his internship at Bellevue Hospital, he began, as stated above, during the epidemic of typhus fever at Ward's Island, N. Y. Hospital, he went to Europe, going on a sailing ship and returning on a large emigrant vessel as a surgeon. He remained in Europe nearly two years, visiting



T. GAILLARD THOMAS. M.D., LL.D.



ving as interne in the different hospitals, giving especial attention to Obstetrics in the Rotunda Hospital at Dublin.

Upon his return to New York, for that day unusually well equipped for the battle of life, he established with Dr. Donoghue, a *quiz* class in connection with the University of New York, which was very successful, and attracted much attention. Later he formed a partnership with Dr. J. F. Metcalf, who was then a leading general practitioner of the city. This association continued for fifteen years. From that time his success was assured, and he rapidly rose to distinction and fame. Though his general practice was very large, he early recognized the fact that the eminence he wished to reach could be better attained through a specialty, and to this end he devoted himself especially to obstetrics. He was Professor of Obstetrics in the University Medical College for eight years, succeeding Dr. Bedford in 1855. In 1863 he was appointed Professor of Obstetrics, Diseases of Women and Children, at the College of Physicians and Surgeons, and held that chair for many years, or until the chair of Diseases of Women was established, when he was elected to fill it. His former chair was divided, the Professorship of Obstetrics going to Dr. J. H. Lane, and the Professorship of Diseases of Children to Dr. A. C. Sabin. In 1872 he was elected Attending Surgeon to the Women's Hospital, when he practically gave up general practice to devote himself to gynecology. As an obstetrician, his name is identified with the operation of *laparo elytrotomy* as a substitute for the very grave operation of Cesarean Section. But he soon became so well known as a gynecologist that his reputation as an obstetrician was completely overshadowed.

As a gynecological operator, he was bold without being reckless, inventive in his methods, quick in his movements, and resourceful in his means of meeting complications. As a laparotomist he was especially distinguished, and for that day his results were remarkable. As a diagnostician he was the peer of any. As a teacher he had no superior. As an orator, he was the first in the profession, and as an author, was of world-wide renown. One of the most cultured physicians in New York City remarked to me on the day of Dr. Thomas's funeral that he considered the doctor the greatest medical orator he had ever listened to.

To many of the doctor's old friends and admirers it will be news to learn that his first lecture was a failure; but then it was his first and last failure. He recognized the cause of his lack of success, and took advantage of the knowledge to make of himself what his

friend called him—the greatest medical orator of his time. He knew to be a successful lecturer he must not only be able to explain medical theories and facts, but that he must present them in a refined and cultured manner. To this end, he studied English literature, the methods of the best masters, took lessons in elocution, and at first often delivered his lecture before his mirror in the privacy of his own room. The result was apparent. His lecture room was always crowded; the students of the other departments flocked to hear him, and many a physician with an established position in his profession neglected his practice to join the students in listening to and doing honor to this medical orator.

As a writer Dr. Thomas was fluent and easy—at the same time exact. The first edition of his work on diseases of women published at once his position as the best gynecological writer of his day. It was translated into German, French, Italian, and even Chinese. It ran through six editions, and was used as a textbook all over the world. Once, when visiting a medical store in Berlin, he asked to see what works they had on gynecology. The proprietor handed him a book which he said was the best they had, and, in fact, the best published. The doctor took it in his hand his own work.

Dr. Thomas, while not carried away by every new idea, was thoroughly abreast of the times—accepting only what was new to his judgment, after investigation. He often quoted the

Be not the first by whom the new is tried,
Nor yet the last to lay the old aside.

Though acutely sensitive to public opinion, he never allowed himself to be swayed by it when firmly convinced that his attitude was the correct one.

In his talks with his younger associates he often said that to succeed as surgeons they must make it a rule to do always the very best for their patients, endeavoring by study, observation, etc., to make it the best that was in them; having done their duty was done, and they must not worry, nor would they be deserving of any blame. In other words, be sure to the best of their ability that they were right, and then go ahead.

Dr. Thomas was a born leader of men; in any walk of life he would have filled front rank. Of a strong but pleasing personality and affable manner, he was enthusiastic, capable of a great amount of work, energetic, persevering and untiring. A *brave* man physically and morally—having the courage of his convictions, even though they might lead him out of the

h; never shirking his responsibilities, and often, indeed, shouldering those of his weaker brethren. A *strong* man, and feeling strength, he could ill brook opposition. In his earnestness and fixedness of purpose, he rode over all obstacles.

In his domestic relations he was peculiarly tender—a devoted husband, and a most affectionate and indulgent father. He was married in 1862 to Miss Mary Willard, of Troy, N. Y., who, with two sons, J. Metcalf and T. Gaillard, Jr., survive him.

In politics a Democrat, he nevertheless supported McKinley and Roosevelt—Bryanism and the depreciation of the currency being antagonistic to his ideas of honesty.

A Southerner by birth, during the Civil War his feelings of sympathy led him to offer his services to the Confederacy, although opposed to secession, and foreseeing that the Southern cause was hopeless. He left New York for this purpose, but happily, on his arrival at Charleston he found his services were not needed, and he returned to New York, only to find that owing to his espousal of the Southern cause, he was expelled from the New York Academy of Medicine. Later, when the bitterness of feeling had died down, he was reinstated.

In 1872 he was appointed Attending Surgeon of the Women's Hospital in the State of New York, where he devoted himself exclusively to his specialty until 1887, when he resigned. He continued to operate in private practice until 1900. On November 21st, 1901, his 70th birthday, the profession of New York City gave him a dinner excelling any ever given an M. D. in this country. At various times he served on the Medical Boards at Bellevue, Roosevelt, St. Luke's, Nursery and Children's, The Strangers and St. Mary (Brooklyn) Hospitals. He was a constant of the Presbyterian, French, the New York Lying-In, Skin and Cancer and Memorial Hospitals, and the New York Infant Asylum. He was at the time of his death President of the Medical Boards of the Women's Hospital in the State of New York, the Nursery and Children's Hospital and the New York Infant Asylum.

Dr. Thomas was a member of the New York City Medical Society, New York Pathological Society, New York Academy of Medicine, New York Obstetrical Society, New York State Medical Association, American Gynecological Society and American Medical Association. He was a corresponding fellow of the Obstetrical Societies of Philadelphia, Louisville and Boston, and an honorary fellow of the British Gynecological Society.

Socially, Dr. Thomas was strongly identified with the life at Southampton, L. I., being one of the first to build a there as a summer home. He was instrumental in organizing the Village Improvement Association and other associations to the growth of the Summer colony and the welfare of the town. He was one of the original members of the Meadow Brook Golf Club and the Southampton Club.

In New York he was very prominent in The Riding Club at the time of its inception, and maintained his interest in the organization to the end of his life. He was also a member of a number of other city clubs.

Dr. Thomas's story is the story of a complete, well-rounded life lived well and nobly; terminating, as he desired, with interest and enthusiasm were yet alive. P. F. CHAMBERLAIN

Requiescat in pace.

On motion, the following resolution was adopted by the Medical Board of the WOMAN'S HOSPITAL OF THE STATE OF NEW YORK at its meeting held on the fifth of March, 1903; it was voted that a copy of the same be sent to the Board of Governors, and that it be published in the Medical Record and the AMERICAN JOURNAL OF OBSTETRICS, and that a copy suitably engrossed be forwarded to the family of Dr. Thomas:

Resolved: That we record with feelings of the deepest regret the death of our associate, Dr. T. Gaillard Thomas, President of the Medical Board and a Consulting Surgeon to the Woman's Hospital, which took place at Thomasville, Ga., on February 28, 1903.

Dr. Thomas devoted the best years of his professional life from 1872 to 1887 to the service of this Hospital as an Assistant Surgeon. During all these years his ability as a diagnostician, his brilliancy as an operator were the admiration of his colleagues. The results of his scientific work added largely to the reputation of the Hospital and greatly broadened the sphere of its usefulness. He merited, and easily won, the confidence of his patients; they trusted him as friend, as well as surgeon. His assistants and the members of the House Staff found him the most kind and considerate; he would oftentimes spare the patient never himself, when unusually laborious work was to be done. He was honorable, unselfish, a noble man, whose precepts and whose example alike inspired many a young colleague to follow after the highest ideals that can be set before a physician.

Full of years and of the honors that had been conferred

n, happy in the affection of his friends, his lifework completed, peace with God and with his fellowmen, he has gone to his reward.

HENRY D. NICOLL.

BACHE MCE. EMMET.

CLEMENT CLEVELAND.

P. F. CHAMBERS.

MEDICAL BOARD OF THE NEW YORK INFANT ASYLUM.

At a meeting of a committee appointed by the Medical Board of the New York Infant Asylum held March 30th, 1903, the following resolutions were adopted:

Whereas, The late Dr. T. Gaillard Thomas, for several years, and at the time of his death, was Consulting Obstetrician to the New York Infant Asylum and President of the Medical Board, in an office in which he exhibited wise counsel and charming personality, and

Whereas, Dr. Thomas was a man of great eminence, well known in the medical profession throughout the world, by virtue of whose character and renown much honor was reflected upon this Institution, therefore

Be it resolved, That the Medical Board of the New York Infant Asylum record the death of Dr. Thomas with a sense of deepest regret and inexpressible loss, and further

Be it resolved, That a copy of these minutes be sent to the bereaved family, and to the principal medical journals, and inscribed on the records of the New York Infant Asylum.

Signed:

J. MILTON MABBOTT, M.D.,

GEORGE TUCKER HARRISON, M.D.,
Committee.

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Meeting of January 16, 1903.

The President, CHARLES S. BACON, M.D., in the Chair.

CARCINOMA OF THE UTERUS WITH SECONDARY DEPOSITS IN BOTH TUBES AND RIGHT OVARY.

DR. REUBEN PETERSON, of Ann Arbor, Mich.—I have several specimens. The first is from a woman, 47 years of age, who entered the hospital December 9th last. She had been married twenty-eight years and has had four children. Since last July the patient presented symptoms of malignant disease; she had a vaginal discharge and had passed what she described as "pieces of flesh." When I examined her under anesthesia I found closely connected with the uterus on the left side a large tumor reaching

nearly to the umbilicus. The woman was very fleshy, about 250 pounds, so that I was unable to determine whether it was cystic or solid. I found the appendages adherent and so I decided not to do an abdominal section, although I had intended originally to take out the tumor through the vagina. I removed the uterus and found the tumor was a broad ligament cyst. The specimen is a beautiful illustration of a squamous cell carcinoma, starting at the cervix, with secondary involvement of both tubes. On the right side is a pus tube and the ovary on that side is also involved in the secondary growth. Clinically, it is interesting because in order to remove this extensive growth, I had to use the Trendelenburg position. I am always loath to do this with fleshy patients because I have had trouble before. This patient also had a umbilical omental hernia, and in pulling on the omentum, to pull it away from the hernial sac, the respiration became labored. I lowered the table and the pulse became feeble. I had to get off the table as fast as possible and stimulated her. She died a few hours after the operation with marked cyanosis and symptoms of pulmonary embolism. We could not obtain a post-mortem examination, so had to depend on the symptoms for a diagnosis.

EXTRAUTERINE GESTATION OF SIX YEARS' STANDING

The second specimen was removed from a woman, 33 years of age, who has been married seventeen years. She entered the hospital December 8th. She gave a history of having had recurrent attacks of pelvic inflammation, and I considered it more than an ordinary case of bilateral pyosalpinx. I did a laparotomy and found, when dissecting out the mass on the right, that I had to deal with an old extrauterine gestation. The mass contains the fetal bones. I questioned the patient afterwards and learned that six years previously she had been very sick during one of these attacks, which she had ascribed to pelvic peritonitis. At that time she had skipped her menstrual period; she had double phlebitis and evidently it was at this time the extrauterine gestation occurred.

The interesting point about the case is the relation of the mass to the rectum. It was densely adherent to its lower part and evidently from necrosis would have ruptured through and the contents would have passed out through the rectum.

EPITHELIOMA OF THE VULVA.

I brought this specimen because it is somewhat along the lines of Dr. Percy's paper. The specimen was removed from a woman of 54 years of age, who had been married thirty-three years and had four children. Six months before her entrance to the hospital she experienced an itching about the left labium major and she said that two months later an abscess formed and had to be incised. It did not heal and another physician sent her to the hospital.

Upon examination I found malignant disease involving the upper part of the labium majus, the labia minora and the clitoris. It had ulcerated, but did not seem to be attached to the pubic bone, and I was unable to find any enlarged inguinal glands. I removed it by an extensive incision, taking away nearly the entire vulva. I began the incision high up, then cut around the urethra, left a small portion of mucous membrane there because it was not involved and brought the parts together, the line of union being almost Y-shaped. The mistake I made was in not removing the inguinal glands. I postponed this for another operation which the woman later refused to permit. The wound healed by primary union and she left the hospital. Two months afterward she began to have trouble in the inguinal region and two months later was re-admitted to the hospital. There was no question in regard to the diagnosis of secondary involvement of the left inguinal glands.

I made an extensive dissection of the inguinal region and went outside as far as I could, but although the wound healed by first intention, it only stayed the progress of the disease temporarily. The X-ray was tried, but failed to do any good, and the woman died a few months later.

EXHIBITION OF PLASTER CASTS.

I show you some casts that I have been making ever since I became connected with the University of Michigan. We make casts of all abdominal and other growths which show externally. For instance, the cast I now show you was taken not because the case was very unusual, but because it is a record of the case such as no verbal description can furnish. In the same way casts are made of abdominal tumors and are used for teaching purposes as well as records. In speaking about differential diagnosis to my class, if a student, for instance, has the idea that an ovarian cyst is always in the median line, I simply show these casts and demonstrate to him how an ovarian cyst starts on one side and finally reaches the median line.

HORSESHOE TUBE.

I have one more specimen, the most interesting of all. The woman from whom it was removed is 27 years of age and has been married ten years. I saw her last March for the first time. She had complained of tenderness and pain in the lower abdomen five weeks before she was referred to me. Examination showed an irregular mass extending as high as the umbilicus. Below I could obtain fluctuation and the uterus was carried upward. Here, again, we had to deal with a fleshy woman, and, I thought, with a fibroid plus an ovarian cyst, and operated with that idea in view. I found that I had entirely mistaken the nature of the growth. On opening the abdomen, I came upon a blue-walled tumor, extending very deep into the pelvis on the right side and upward as

high as the umbilicus on the left. It was a cystic growth, there were only a few adhesions. I introduced a small tube and withdrew nearly one thousand cubic centimeters of fluid of the consistency of pea soup. It was not, however, until I began to enucleate the tumor that I realized what it was and found that the two tubes joined together at their fimbriated extremities. I had the specimen hardened in formalin, then cut open, and found it not unlike a horseshoe kidney. There is a free opening between the tubes. The contents turned out not to be pus, but a clear fluid made up of cell debris. Undoubtedly we had to deal with a hydrosalpinx, which had united and then the partition was removed, leaving a free communication between the two tubes. I moved both ovaries at the same time.

DR. EMIL RIES read a paper on

THE CONDITION OF THE PELVIC LYMPHATICS IN CARCINOMA OF THE UTERUS.

Since 1895 I have removed the pelvic lymphatics in carcinoma of the cervix. The glands in all cases have been examined as carefully as possible. From the ten cases of carcinoma of the cervix upon which I have operated, some twenty sections have been made, and I have looked at every one of them myself. From the large number of sections made, it has been proven that carcinoma of the uterus invades the pelvic lymphatics just as early and with just as much certainty as carcinoma of the breast invades the regional lymphatics.

We find carcinoma in these glands to a variable extent. In the early stages, the growth in the gland faithfully represents the original carcinoma in structure, arrangement, and proportion. I have specimens which show four different stages of invasion of the lymphatic glands. The first shows a small carcinoma mass in the afferent lymphatics, outside the gland tissue, which is so distinctly shaped and constituted like the original carcinoma that there can be no doubt as to its nature. Serial sections show that these carcinomatous masses in the afferent lymphatics do not form a direct continuation of the original carcinoma of the cervix, but that particles of carcinoma are carried away from the original seat of the tumor with the lymph current to the lymphatic glands. This discontinuity of growth shows that it is always possible to cut between the regional lymphatics and the original carcinoma, because we may escape carcinomatous areas by so doing.

The next stage of invasion shows the hilus of the gland invaded by the carcinomatous masses, the lymphatic tissue not yet invaded; but only the connective tissue of the hilum. In the next stage a few follicles, especially their germinal centers, are invaded, or a few of the medullary cords. Carcinoma is in the center of them. These carcinomatous masses in the lymphatics compress the surrounding lymphatic tissue; they form

inside the follicles or inside the medullary cords. The carcinoma may involve the entire gland. In these glands, then, the carcinoma may undergo the same degeneration as in the original gland, forming central cavities of large or small size which are filled with extravasated blood or with the products of degeneration of the carcinoma. The cysts inside the carcinomatous masses may become confluent, so that the gland may form a hollow mass of carcinoma which may easily burst during attempts at its removal.

The carcinomatous gland is by no means always enlarged, nor is an enlarged gland always carcinomatous. The specimens containing carcinoma in the hilus of the gland are not at all from enlarged glands, certainly not so large as to be felt by a bimanual examination before operation, not even large enough to be palpated through the peritoneum during operation without being dissected out carefully.

Carcinoma of the glands is frequently associated with other conditions. I have observed epithelial ducts in the lymphatic gland. Usually they are small, situated in the capsule of the gland, following the trabeculae of the gland. When the epithelial ducts become larger and more extensive, they may extend into the tissue of the lymphatic gland, but always following the trabeculae, not like a malignant growth. These epithelial ducts are composed of low or high columnar cells, with a nucleus in the middle of the cell, sometimes with bristles at the top of the cell. The epithelial ducts are surrounded by connective tissue. The contents of the ducts are either a few degenerated cells or some leucocytes. The ducts are straight or ramify. The epithelium is always in one layer only.

My first case, in which epithelial ducts have first been observed, was a stratified epithelial carcinoma of the cervix, so there is no doubt but what the epithelial ducts have nothing to do with the original carcinoma. The patient from whom the specimen was removed is alive, six years since the operation. This makes it improbable that I could have overlooked a second primary carcinoma in her body. The many sections of the uterus which were examined did not contain any carcinoma, except squamous epithelial carcinoma of the cervix. In four cases out of the ten examined, I found epithelial ducts which did not harmonize with the original carcinoma. Double primary carcinomas of different types, one squamous, for instance, and the other adeno-carcinoma, in the same patient are extremely rare. If I had found four double primary carcinomas among ten patients, it would be unheard-of.

To explain these epithelial ducts it might be possible that some of the cells of the normal tissue surrounding the carcinoma were carried along into the lymphatic glands and continued their growth there, forming epithelial ducts, non-malignant. As the cervical epithelium is different from that in the epithelial ducts in the lymphatics, this explanation was dropped.

The first case in which I found epithelial ducts contained carcinoma of the cervix, adeno-myoma of both uterine horns, and an

extremely small adenoma of the sacro-uterine ligament. The structure of the adeno-myoma of both uterine horns is very like that of the epithelial ducts in the lymphatics. The connection between the posterior pelvic wall and the Wolffian body, in which adeno-myomas originate is so close that it is quite probable that remnants of the Wolffian body may have become embedded in the lymphatics located on the posterior pelvic wall. This theory has been accepted by other observers.

In cases in which glands are removed by this operation, they may or may not contain carcinoma, a condition of large cell hyperplasia has been observed. Among the thickly crowded glands there are large clear cells, with large distinct nuclei, sometimes resembling carcinoma cells. I do not believe these cases are all carcinomatous. The large cell hyperplasia can be found in tuberculosis and other cases. I believe it represents a condition of degeneration and activity with which we are not sufficiently familiar. Numerous glands, whether carcinomatous or not, I have found containing trabeculae of hyaline degeneration containing calcareous deposits. This hyaline degeneration may be limited or extensive. It interferes with the circulation in the gland. It is formed in old as well as in young women. It is associated with carcinoma in the same gland, or not. It is found unassociated with carcinoma elsewhere. The glands which present this calcareous deposit and hyaline degeneration frequently show fat tissue infiltration of the lymphatic glands. The fact that this fat infiltration of the glands is found together with carcinomatous, tuberculous or other inflammatory processes in the lymphatic glands, does not by itself prove that this fat infiltration is a regeneration of the glands. Dr. Bayer removed experimentally in animals the whole axilla as completely as possible, with the glands, allowed the animal to live, and then examined the axillae again after some months. He found newly-formed glands. But the same condition of degeneration is observed everywhere in the connective tissue, wherever there are lymphatics and fat, where there is no destruction of glands. It occurs, either by carcinoma, tuberculosis or any inflammation. In his researches on the hemo-lymph glands, Warthin has found the same condition. We are led to believe that in the lymphatic system a constant fluctuation is taking place; that as glands degenerate, new glands are formed, and they may form anywhere in the connective tissue.

The characteristic feature of hemo-lymph glands is that their sinuses contain red blood corpuscles mixed with the lymph. The hemo-lymph glands, with their direct communication with the blood current, offer an entirely new explanation of the ways in which carcinoma of the uterus, or elsewhere, may give rise to metastases. It has been assumed that carcinoma proceeds by the lymphatics. If it proceeds to a lymph gland, which has direct connection with the blood current, there is nothing to prevent it from invading the whole circulation.

BALL PESSARY.

DR. EMIL RIES.—I desire to show a ball pessary which was used by a woman, 50 years of age, for prolapse of the uterus for four years. It was introduced by a midwife. It was the only pessary that held the uterus in position. (This ball was approximately eight inches in circumference.) The remarkable point is that the woman carried it for four years without any ulceration of the vagina. Of course, the vagina became enormously relaxed. The woman could remove the ball by pressing hard. She washed it from time to time, then re-introduced it.

DR. J. F. PERCY, of Galesburg, Ill., read a paper entitled

PRIMARY CANCER OF THE URETHRA IN THE FEMALE; REPORT OF A CASE, TOGETHER WITH A CRITICAL REVIEW OF THE LITERATURE REGARDING THIS RARE FORM OF CANCER.

SEE PAPER. PAGE 457.

DR. LESTER E. FRANKENTHAL.—About three days ago I received a letter from Dr. William Barnes, of Decatur, Ill., in which he gives the report of an interesting case.

"JANUARY 27, 1903.

"Mrs. K., a woman, 42 years of age, had always been well up to about a year ago, when she first noticed a slight growth at the mouth of the urethra; this gradually increased in size. Whether it was an open ulcer in the beginning or started in the peri-urethral tissue and later broke down, she cannot tell. It gave her more or less discomfort, but no severe pain. She did not consult a physician until December 22, 1902, when she found herself unable to pass her water. I saw her the next morning, in consultation, found the urethra surrounded by a hard mass about the size and shape of a butternut, extending almost to the neck of the bladder. The orifice of the urethra was imbedded in an ulcerated surface about as large as a quarter. There was a mass of enlarged glands in either groin, freely movable. Immediate operation was advised; she, however, wished to wait until after Christmas, so it was put off until December 28th. Glands in the groin first removed, wounds closed with catgut and sealed with collodion. An incision was then made around the mass, the growth was first separated on its upper side from the pubes, dissection being carried well up beyond the growth, which was then removed en masse by a transverse incision across the urethra, close to the neck of the bladder. The skin of the labia being loose and redundant, it was found possible to draw them in above and at the sides and attach them to the mucous membrane of the urethra. The mucous membrane of the vagina was drawn up and attached in a similar way below so that the raw surfaces were entirely covered. A self-retaining catheter was inserted and the vulva packed loosely with

gauze so as to keep the flaps closely applied to the under surface of the pubes.

"The patient was discharged from the hospital in three weeks, the wounds in the vulva and vagina being entirely healed by intention. The wounds in the groin had also healed except for a raw surface at outer edge, where there had been a slight leakage. She is now able to retain her water three or four hours without leakage and is feeling strong and well."

I have not made any microscopic sections of the specimen, but I think it is either periurethral or urethral carcinoma. About an inch of the urethra proper appears to be involved in the ulceration. It is probably a primary carcinoma of the urethra.

I would like to ask why Dr. Percy made a suprapubic operation in his case. I do not see any particular advantage in it. If the patient is to live I should imagine an operation could be made to form the formation of a new urethra. Recently a very clever operation was done abroad, which consisted of dissecting off the urethra from the vagina, drawing out an elliptical piece similar to the one from the center of the bladder and suturing the two laterals as they are formed by drawing out the elliptical piece and making a secondary operation for the complete formation of the new urethra. The case was very successful.

DR. M. L. HARRIS.—Owing to the rarity of primary carcinoma of the urethra, each individual's experience must be limited. I have personally seen and operated upon but one case of primary carcinoma of the female urethra and have had the opportunity of seeing one case of primary carcinoma of the male urethra.

The most important point in diagnosis is the tendency of the carcinoma to infiltrate the deeper tissues. This is not only the case of carcinoma of the urethra, which perhaps most often comes into consideration in the differential diagnosis. The tumor is of a polypoid nature. In the case I saw a lady, 67 years of age, who had had her trouble probably a year and a half. There was marked infiltration of the peri-urethral tissues. The case was undoubtedly one of primary carcinoma of the urethra and I removed nearly its entire extent. In this case I removed the entire tumor and a portion of the neck of the bladder. I performed a suprapubic operation because we had to remove so much of the neck of the bladder that we could not hope for any successful action of any control and because this operation afforded suprapubic drainage. Leakage occurred about six days after the operation, but during the cicatricial contraction this leakage was reduced to the passage of a drop or two. The patient recovered well and the suprapubic opening answered the purpose very well. The operation was done in July, 1901. In February, 1902, another operator attempted to close the leak and the patient died from infection. The doctor who operated the second time told me that there had been no recurrence up to that time, within seven months.

DR. FRANKENTHAL.—Did you remove the glands?

DR. HARRIS.—There were no glands to be felt, consequently there was no operation made on the inguinal glands, and as there was no recurrence at the end of seven months, it is highly probable that the glands were not involved.

With reference to glandular involvement and the rapidity with which it can take place, I have recently seen a case of epithelioma just at the inner edge of the labium minus which was quite small at the time it was removed, yet three months after the operation there was quite extensive glandular infection or involvement, so much so, that I deemed it inadvisable to operate.

DR. EMILE RIES.—Dr. Percy's case of carcinoma of the urethra is typical. In all these cases the glands should be removed; otherwise there is no certainty of a cure. Even with removal of the glands, it is hard to say whether every focus of the disease has been taken away. In carcinoma of the urethra the external and internal inguinal and the obturator glands may become implicated if the infection experiments prove anything.

I believe Dr. Percy stated that the patient who had cancer around the anus is now well. Looking at the specimen, I should say it is not carcinoma. I hope Dr. Percy will show us slides of this case at some future time. The type of growth is that of a venereal wart. An almost pedunculated tumor of that size, which does not slough, which shows a distinct villous appearance as this does, does not look like a malignant tumor, because it is typical for a malignant growth to degenerate. It would be remarkable if a carcinoma spread as rapidly as this tumor did. If primary in the urethra, it certainly should rather be expected to spread along the vulva, the introitus, than to simply drop off and become implanted about the anus. There are two distinct tumors around the anus and they look very much like venereal warts. We shall have to trust entirely to the microscopic sections.

The most interesting case of the three is the one reported by Dr. Frankenthal. The prostatic glands in the female are found along the urethra, as Aschoff has proved conclusively. This tumor leaves the urethral mucous membrane so entirely intact, from what I can see in the gross specimen and has developed so entirely outside of the urethra in a distinct nodule, that it seems we have to deal with a carcinoma originating in a degenerative rudimentary prostate. I shall await the microscopical investigation of this case with much interest.

Dr. Percy's paper has proved that investigations by circular letters do not prove anything. If a man has an interesting case he wishes to publish he will not give it in detail in a letter to a professional friend, because he has not the time to devote to it. If he has such a case he will work it up himself and publish it. Of course, every effort to ascertain the frequency of carcinoma of the urethra is justifiable, and Dr. Percy deserves praise for his attempts and for investigation of the literature. To weed out everything uncertain is a gain to science. It is much better to know

that something is not true than to have a lot of theory position.

DR. PERCY (closing the discussion).—In answer to enthal's question as to why I closed the bladder below operated on this case I looked up the literature, and the I could find at the time was the report of Zweifel's work. He removed not only both labia and a part of the vagina with part of the base of the bladder, but also the clitoris, and did a symphyseotomy, dissected out all glands though I did not see the necessity for doing that in my a feeling that the infection was spreading backward bladder along the urethra. I gave the bladder but little while operating. My chief idea was to get if possible of the urethra which was involved. When I reached the only thing was to cut off what was left of the urethra it and then do a suprapubic operation. I might have saved the woman's life had I cleaned out not only the inguinal but those in the pelvis as well.

As to the pathology of the specimen of carcinoma and urethra which I have exhibited, I think that you will think that it is not from the case that is the subject of my paper. I bring it as a good specimen of peri-urethral carcinoma, but that I cannot present the microscopic slides on which the pathological report of Professor Welsh is based.

Dr. Ries refers to the possibility of the gross specimen present being merely a syphilitic wart of the urethra. The question of venereal warts entered my mind at the time the woman presented herself for treatment. She was placed on a course of mixed treatment, both iodides and mercury, and a part of the specimen were sent to the Presbyterian Hospital, where a report came back that it was epithelioma. My experience with venereal warts has been that if they are dealt with surgically without specific treatment they will recur. The history of the case gave was that she felt a sudden desire to evacuate the bowels while walking along the street and that this was soon followed by a sensation as if something had come from the anus. Upon examination she found the growth that I present here protruding from the anus. The sudden extrusion of growths from the urethra happened in a number of cases reported in the literature. It has been manifest by a blocking of the urethra for a short time with a certain amount of pain, then the protrusion of the growth.

One word in reference to getting information by circulars. I do not think Dr. Ries differentiates in this matter quite enough. There are men who answer letters and there are men who write letters. Dr. Ries is one of the former; he answered my letter, but he referred me to some literature on the subject. The experience I had in looking up this subject was a great pleasure, because the men to whom I wrote in various parts of the country were really interested. Dr. Keen, of Philadel-

instance, gave me a great deal of help, as did the late Dr. Fenger and Dr. Hyde, of this city. Von Winckel, of San Francisco, and others, many of them members of this society, but whose names I cannot recall, answered my letter. If we strike the right men we will obtain much information.

DR. REUBEN PETERSON, of Ann Arbor, Mich., reported a

CASE OF INVERSION OF THE UTERUS OF SIXTEEN MONTHS' STANDING; REPLACEMENT BY ANTERIOR COLPOTOMY AND ANTERIOR UTEROTOMY, WITH RECOVERY.

The patient was an American, aged 26, and married three years. Her family and personal histories were negative. Her menstruation first appeared at the age of 12, and up to the time of her present trouble was entirely normal. Her first confinement occurred about fifteen months before her entrance to the hospital. It was rather an easy labor and was terminated by forceps, the instruments being applied only about five minutes. The patient did not remember about the delivery of the placenta and felt nothing give way. She flowed very profusely and was given, presumably, ergot. The flowing ceased soon after the completion of labor and there was no further hemorrhage until the seventeenth day, at which time she had been up and about the room for a week. Two weeks later she consulted her physician, who told her there was something wrong with the uterus. He made a number of unsuccessful attempts "to fix it."

Dr. Peterson saw the patient soon after this. Vaginal examination disclosed a typical inverted uterus, with rather a small fundus, situated about one and a half inches within the introitus. High up in the vagina could be felt the cervical lips, forming a complete collar or rim at the extremity of the uterus.

The inverted uterus was grasped with the volsella and pulled forcibly outward and downward. Another volsella caught the anterior vaginal mucosa in the median line just above the anterior lip of the cup and pulled it sharply upward. Through the vaginal mucosa thus made tense a horizontal incision was made some two and a half inches in length. To avoid opening the bladder, the incision was made as close to the cervix as possible. The vesico-uterine peritoneum was opened, and the cervix exposed. A volsella was placed on the anterior lip to either side of the median line, and the cervix incised between. This incision was carried upwards in the anterior median line of the uterus to within one-third inch of the fundus. The inversion was now easily reduced, the fundus going upwards and each half of the divided cervix being carried through half the arc of a circle and finally meeting, so that the two halves formed a complete cervix directed downwards, not upwards. He now adopted the suggestion of Taylor, and removed a wedge-shaped piece of the bulging uterine wall on either side of the incision. This was done to enable the retracted edges to come together. The uterine incision was next closed

by a continuous catgut suture. The needle was passed on the peritoneal surface down to, but not through, the uterine wall. There was some gaping in one or two places, in spite of the most care to bring together the peritoneal edges. An unsuccessful attempt was made to close in the spaces by interrupting the stitches, but the stitches tore through the uterine wall when made. A catgut suture was passed around the round ligament close to the uterus, and each end passed through the anterior vaginal wall and tied, after the fundus was drawn up within the pelvic cavity. This brought the defective line of incision up against the bladder peritoneum, at the same time giving support to a fundus which had been protruding for months. A small strip of gauze was placed to the left of the median line between bladder and uterus, and another strip to the right. A drain was left in the uterine cavity. The lateral vaginal incisions were brought together about the cervix after the peritoneum was sutured to the uterus, except about the opening where the gauze drain protruded.

The author had had no experience with posterior incision in replacement of an inverted uterus, but this method might be much inferior to the anterior incision.

The most interesting feature of the case was the sudden rise of temperature and pulse within twenty-four hours after completion of the operation. Was this due to a sudden absorption of necrotic material from the replaced uterine mucosa? Or was it due to leakage into the pelvic cavity through the unsutured uterine incision? The author thought the first explanation correct. The symptoms were typical of septicemia. The condition of the patient was at no time dangerous. It was not so soon for septicemic symptoms to develop from a leakage through the uterine incision. If the rise in temperature was due to absorption from leakage, improved technique in the form of a larger wedge-shaped piece would remedy this defect.

Vaginal fixation of the round ligaments, he believed, was an improvement over the ordinary technique of the operation. It prolonged the operation only a few minutes, and effectively drew the uterus forwards and forwards the relaxed fundus, and acts as a support to the uterine incision by holding the latter against the peritoneum.

DR. T. J. WATKINS.—I have seen four or five cases of inversion of the uterus. I assisted Dr. Frankenthal in one where we attempted the Thomas method of dilating the cervix by abdominal incision, but were unable to reduce the dissection which necessitated another operation. I saw an interesting case some time ago with the late Dr. Dorland. There was a mass to be found at the upper part of the vagina save a small portion of the mass. An exploratory vaginal section was made and it was found that there was nothing there but a small portion of cervix. The patient gave a history of having had a polypus removed by an elastic ligature some years ago. It had not been a case of

but one of inversion of the uterus. The uterus had been amputated by the elastic ligature, and in its application not only the body of the uterus was included, but both tubes and ovaries. The patient had made a comfortable recovery after the use of the elastic ligature operation. I believe the method Dr. Peterson pursued in this case is the ideal treatment for inversion of the uterus. Possibly the technique might be simplified by making an incision directly into the uterus and then splitting up towards the cervix. After the uterus is restored to its normal position, the technique might be simplified by suturing the uterus into the vaginal incision.

DR. DE LEE.—The point of interest in the case of Dr. Peterson is the absence of reported symptoms at the time of labor. I would like to ask whether the doctor thinks this inversion was slow, and not sudden.

DR. FRANKENTHAL.—I would like to ask how much of the bladder did the doctor find inverted.

DR. PETERSON (closing the discussion).—There was nothing drawn into the funnel. As to the remarks of Doctor Watkins, I considered the suggestion of splitting directly through the fundus, and then going upwards, but it would seem to me the other technique was better because it exposed the cervix first, so I adopted that.

In reference to the remarks of Dr. De Lee, I questioned the woman carefully in regard to the nature of the inversion, and there were no symptoms at the time of labor except an excessive hemorrhage. But this hemorrhage soon ceased and there was very little flow from directly after labor until the seventeenth day, when the patient went to the doctor's office, and he told her there was something the matter and tried to remedy the difficulty. I am glad to hear Dr. Watkins' experience with the Thomas operation. I have not had time to look up the literature, but that operation is not as good to my way of thinking as the one adopted in this case, because it is difficult to dilate the ring. It is held firmly, and I should think that the process of dilatation might bruise the uterus much more than simply cutting it. I cannot understand the position of Hirst in this matter. He has some illustrations in the *AMERICAN JOURNAL OF OBSTETRICS*, and expresses surprise that nobody has thought of his operation before. His case must have differed from mine as anybody will find who tries to reinvert a uterus after splitting the cervix and going somewhat up on the uterine wall. It is by no means the easy matter which he makes it appear in his article.

The particular point I wanted to bring out in my paper was to condemn the various methods of taxis for chronic inversion of the uterus and to advocate the cutting operation as the most rational and the least dangerous.

RUDOLPH WIESER HOLMES,
Editor of the Society.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY

Meeting of January 27, 1903.

The President, BACHE MCE. EMMET, M.D., in the

OVARIAN CYST.

DR. BACHE MCE. EMMET.—I wish to mention a case that I operated upon last Wednesday morning. I found the case for demonstration of the characteristics of the an ovarian cyst; the confined fluid, the shape of the growth of the mass, the emaciation of the patient, the sound of the intestines crowded up against the diaphragm, the whole lower mass dull on percussion, the flanks without sound. I incised in the usual way, expecting to expose the cyst. I found, upon opening the peritoneum, that the abdominal cavity was due to ascitic fluid. There was present an ovarian cyst—a multilocular mass as large as my two fists on the left side, many adhesions and a number of papillomatous growths on the left side, about the broad ligament and the parietal peritoneum. These ranged in size from that of a pea to that of a pine apple of that exuberant type. It was of no purpose to try to remove the diseased mass—it would make a prolonged operation without promising a corresponding benefit, so I closed the incision, throwing in a large quantity of saline solution to wash out the broken-down material and to replace some of the ascitic fluid. The patient will doubtless recover from this exploratory operation, but there can be very little hope for her future.

DR. JAMES E. WEST.—I had the pleasure of being called to examine the patient. It seemed such a beautifully diagnosed case—a quantity of fluid in a sac, with point down in the pelvis, was the peculiar rise and fall of the fluid, apparently confined to a sac. I believed there must be a cyst wall. The intestines were crowded down, in the peritoneal cavity. The fluid certainly was in the peritoneal cavity, but was apparently confined to certain points.

PRESENTATION OF SPECIMENS.

DR. EMMET.—I have here a specimen which is interesting from a diagnostic point of view. It was removed about two weeks ago. The patient has now returned to her family. I

a cyst of the broad ligament so closely related to the ovary that the question of origin must be determined by the microscope. Upon opening the abdomen, it was found that the cyst lay in the anterior peritoneal space, yet the ovary from whose extremity it appeared to originate lay behind the broad ligament with a retroverted uterus. The ovary itself was of the size of an adult's thumb, both in thickness and in length, and this cyst was, as it were, thrown over the top of the broad ligament. I removed only the portion of the ovary connected with the growth. There remains a doubt as to whether this sprang from the ovary, or from the fetal remains in the broad ligament. I shall hold it intact and submit it to a pathologist. If it prove to be multilocular cyst that would bespeak its being of ovarian origin.

DR. WEST.—I consider Dr. Emmet's specimen extremely interesting. It is believed that the tumor developed in the broad ligament and that the tube is behind it, yet it apparently has sprung from the ovary, of which it is distinctly a part. It has developed between the folds of the broad ligament rather than up in the abdominal cavity. The operator says he left a considerable portion of the ovary. That brings up a field of discussion as to the advisability of leaving a part of an ovary from which cysts have developed. I have done that in four or five instances, and in two the tumors recurred in the remaining portion of ovary. I have been compelled to operate a second time.

I see in this specimen small cysts of about the size of a pea. The patient may have trouble of the same kind in the part of the ovary left. I have reached the conclusion that if I can leave one healthy ovary and tube I will remove all of that ovary which contains the cysts. If, however, the other ovary is so diseased that it has to be removed in part or in toto, I shall attempt, in a young woman, to remove the part where the cysts are located, and let her take her chances of a secondary operation.

DR. EMMET.—If I find an ovary positively diseased, forming cysts rapidly and abundantly, I hesitate very much about leaving it, and I fail there to enter the ranks, so rapidly growing, of strong conservatism, so right on proper lines. This was simply a very large ovary lengthened out in links, that did not appear to have been diseased, otherwise with such a cyst, I would have made a total ablation.

DR. JOHN ASPELL.—I wish to present a stone taken from the bladder of a girl five years of age. I present it simply to show that in a child as young as that, the bladder is an abdominal organ and we can go through above the pubes and easily reach the bladder. I did suprapubic cystotomy. The little girl had complained of pains for one year.

DR. J. DOUGAL BISSELL.—I am inclined to think some foreign substance was introduced into the bladder.

DR. HERMAN GRAD.—In reference to foreign bodies in various regions I wish to relate the following case: I was called to a patient about two years ago, the report being that the patient had a severe chill. I had never seen her before. When I arrived the

temperature was 106. She was just over her chill. She had these chills every time she was about to be unwell; but never flowed as she should; but always had a thick discharge. Upon examination I found an atresia of the vagina one inch from the vulva. Through a speculum I found an opening through the septum of the atresia which admitted a silver probe. On withdrawing the probe, a drop of blood was in view. The menstrual fluid had evidently decomposed in the atresia. On cutting down it was found that the cavity of the vagina behind the atresia would hold two or three ounces. In the uterine canal itself, I found two glass beads. The patient had evidently had set up enough inflammatory re-action to cure the atresia. The menstrual fluid became decomposed, setting up a low temperature and chills. The patient was twenty years old and had had disturbances as long as she could remember.

DR. BISSELL.—I once removed from a child's vagina a large egg. It looked like a capsule, was dark, gelatinous in consistency and as long as the end of my finger. The child had a white discharge which could not be accounted for until I made an examination and found the egg. I have met, on two occasions, corn and beans which the children acknowledged they had put in the vagina. I once saw a case where a child had pushed a needle through the urethra into her bladder.

The attending surgeons decided that it would not be wise to open the bladder. In the course of a few days, the child was found protruding, and it was pulled out through the vagina by the child herself.

DR. ASPELL read a paper on

ECLAMPSIA.

SEE ORIGINAL ARTICLE. PAGE 483.

DR. GEORGE T. HARRISON.—Many of the cases related are extremely interesting—one almost unique. I think the discussion is rather too hasty, and that the writer lays too much stress upon constipation as an etiological factor. None of the theories in regard to the etiology is satisfactory. When I discovered that albuminuria preceded convulsions, it was too late to suppose and at first physicians did believe the cause was uremia. That theory has long since been abandoned. It is now known that pathological changes in the kidneys are too slow to furnish any basis for the view that change in the structure of the kidneys is the cause of eclampsia, and I think most physicians would consider such changes of secondary importance. They believe there is some virus circulating in the blood that causes the disturbance of the intestines, liver, skin and kidneys. If such a virus is, it is hard to discover, and there is no theory that explains it for all the conditions.

The theory, that the virus is due to the metabolic products formed of the fluids carried in the placenta and furnished to the parental organism, is disproven by the case Dr. Aspell related of eclampsia occurring early in pregnancy.

Most of these cases occur in the fifth month—then the excretory products from the fetus can be carried into the maternal organism. That is conjecture, not an established, demonstrated fact.

DR. WEST.—I was particularly interested in case 4, in which the patient came under observation five days before the eclamptic attack. It was noticed that she had edematous legs, headache and certain nervous symptoms. She was given medicine calculated to promote action of the bowels.

On the third day there was a rather free flow of urine, a little below normal in specific gravity, very slight traces of albumin. Cathartics were used in considerable quantity until on the fourth day she had a thorough evacuation of the bowels. The kidneys were doing well, the bowels well, yet eclampsia occurred. This shows that the attack came on, although everything possible had been done.

In 1896 at the meeting of the American Gynecological Society in Baltimore, fifty-four cases of eclampsia were reported, where the treatment consisted in the administration of veratrum viride. In the cases I have been connected with, I have used nitroglycerin, croton oil, morphine, chloroform, and had the bowels evacuated as soon as possible. Most of the cases terminated fatally.

DR. HARRISON.—Veratrum viride has been praised not only by Dr. Reamy, but more recently by an Italian physician, Dr. Mangiagalli. He used it in eighteen cases, seventeen of which recovered. He insisted that it was a wonderful remedy. In my hands it has not yielded those results.

DR. GRAD.—The paper of Dr. Aspell was interesting to me because I was recently brought into contact with a difficult case. Attention should be called to the fact that the claim now made is that not much reliance can be placed on the presence or absence of albumin in regard to prognosticating eclampsia. The percentage of urea in the urine is far better as a criterion than the albumin. In my case convulsions came on very suddenly, with marked symptoms. The patient complained for three days of very severe headaches—so much so that she was compelled to stay in bed continuously, yet repeated examinations of the urine showed no albumin. She passed a fair quantity of urine. At about eleven o'clock one night she was taken with an attack, and when I arrived I found her face drawn to one side. She could not move the left leg and arm. Subsequent examination showed that she had had a paralytic stroke at the same time. After the convulsion the urine was found loaded with albumin. This cleared up in two weeks, and the patient has slowly made a good recovery, but with slight paralysis of the arm.

DR. BISSELL.—It is my belief that eclampsia may arise from many causes and one of the factors probably is constipation. Eclampsia is undoubtedly due to some poison. We may or may not find albumin in the urine, but in the average case, we do find it. I would like to go over, hastily, my experience of fifteen years with this distressing disease.

The first case was in private practice. I met the patient in eclampsia and gave large doses of bromide and chloral. She had several convulsions through the night and on the next day, but they gradually ceased. I gave 20 grains of chloral, 40 of bromide, by mouth, repeated several times during twelve hours. Up to that time she had had no medical care whatever. I watched her bowels, and relieved whatever nervous symptoms arose. I attended to her general condition for over a month, when she gave birth to a healthy child. It was a normal birth; and she had no convulsions during or after the birth. I do not recall how much albumin was found in the urine.

In the hospital service, four or five cases appeared. The symptoms differed in each. One case was livid when brought in. I had no time to examine the urine. We bled her and the relief was almost instantaneous. She had no more convulsions for forty-eight hours, at the end of which time they returned and we bled her again and with the same satisfactory result. After extracting the child she had no more convulsions. The child lived. The urine contained albumin.

The other cases were all given large doses of bromide and chloral. We depended on these drugs, given chiefly by rectum, the doses of chloral being as high as 40 grains.

In the past two years, I have had but two cases in private practice. When called to the first patient's house I found her suffering with intense headache and nausea. She was between six and seven months pregnant. She had taken a large quantity of soda water in the afternoon and attributed her symptoms to indigestion. I drew the urine and found it full of albumin. She had not been under the care of a physician previously. When I returned to her within two hours she was in convulsions, and remained comatose until she died the next morning. There was no edema. The extraction of child was not allowed until too late.

The second patient was brought from the country, where she had been attended by a family physician. She was in an edematous condition with severe eye symptoms. The urine was full of albumin and I advised operation immediately. Before I operated, hemorrhage began in the retina. I removed a macerated child which had been dead in utero for some time. In this case it is possible that the child was the source of poisoning.

I believe if these cases are taken in hand by the physician early and the habits and diet regulated, the functions of the kidneys and skin attended to, the chances of convulsions are greatly lessened and the probability of recovery is good.

DR. SWEENEY.—Some years ago at the Lying-In Hospital I had an opportunity of seeing several methods of treatment practiced on cases of eclampsia. Dr. Edgar was a great believer in nitroglycerin. Dr. Flint in veratrum viride given in five minim doses until the pulse was 60 to 70. He thought no eclampsia could occur then. Dr. Markoe used hot blankets and threw large

amounts of hot saline solutions into the colon. Manual dilatation and rapid delivery were practiced.

DR. HARRISON.—I think the most important point is prophylaxis. When there are symptoms indicative of disturbance of the functions of the kidneys, if I cannot control them at once, my rule is invariably to interrupt pregnancy, and I have never regretted doing so. I lost one patient by not obeying that rule. A lady came to me much alarmed about herself. When she gave birth to her first child, she had violent eclampsia. She was attended by Dr. Fordyce Barker. She recovered, but had a narrow escape. She had a perfect horror of child-bearing, so much so, that when she became pregnant again she went to an illegitimate practitioner and had an abortion. I implored her never to resort to that method; if she had any regard for her well-being she would better bear the ills she had than fly to those she knew not of. She was frightened and concluded that she would not tamper with that method of getting rid of her troubles. When she became pregnant afterwards I insisted that she must go to the full term, though she presented some symptoms of disturbance of the function of the kidneys. I did everything I could to restore her to a healthy condition. In spite of all my efforts, she had an eclamptic attack. I delivered her, but she died. Holding the views I do now, I would not hesitate five minutes. I should have brought on a premature labor. At five or six months, I should have interrupted pregnancy, if the patient exhibited symptoms of disturbance of the kidney that did not yield to treatment. We have no right to let the mother run the risk of giving birth to a child at full term with this sword of Damocles held over her all the time.

DR. EMMET, in reply to DR. HARRISON.—Many cases have albuminuria in pregnancy, yet it passes off without any untoward manifestations, and the headache frequently comes from toxemia of various kinds. Such a condition is often relieved by a change of position of the uterus; it is very probably caused by pressure upon the ureters. I thought possibly you would make a limitation of your statement. We might be held culpable if, though failing in our attempts at prophylaxis, we still produced abortion unnecessarily.

DR. HARRISON.—The only limitation I should make would be this: that the symptoms disappear. Suppose we regulate all the functions as far as we can, and in spite of all our care, we find that the patient is getting worse instead of better. Prophylaxis demands that we interfere under such circumstances.

DR. BISSELL.—If the symptoms continue alarming and the conditions persist, it is our duty to empty the uterus. By this we could often prevent eclampsia. In one of the cases I have just referred to I was enabled to carry the pregnancy on for another month and deliver a living child.

I agree with Dr. Harrison's view as to regulating, to the best of our ability, the functioning of all the organs. If we find albuminuria, headache, extreme nervousness and eye symptoms persisting, making it appear that we are going to have a serious ter-

mination, then I believe in emptying the uterus before occur. We may not have an opportunity if we wait—may die on our hands.

DR. HARRISON.—Of course you understand that I, as a man, for his own protection, would not interrupt without consultation with one of his colleagues.

DR. LEROY BROUN.—I have had a patient for three months whose urine has a specific gravity of 1001, 1012, no matter what the diet. The urea is 120-160 grains as high as 200, occasionally 220, but it drops back in the urine weekly. The patient was perfectly well; did not have a symptom except intestinal indigestion, which was completely relieved by ordinary treatment. I was surprised to find no symptoms when there was so low a daily excretion. She had a normal labor, giving birth to a twelve-pound child. I simply cite the case to ask if other members of the Association think that the secretion of urea runs so abnormally low. Is it an occurrence in pregnancy? I have not found it so.

DR. ASPELL.—I have found it so, but it is not common. In cases of eclampsia, there have been $7\frac{1}{2}$ grains to the ounce, less, some more. It does not depend entirely upon the diet.

DR. EMMET.—The weight of the individual and the diet may have something to do with it.

DR. BROUN.—It is accepted by a great many obstetricians that the amount of urine excreted is a better criterion than the amount of urea, since urea is, in a measure, an indication of the process of excretion. If the excretion of urea be small, the other poisons are retained, presumably. In my case, though the amount of urea thrown off was small, the patient had an absolutely normal labor.

DR. ASPELL.—I remember listening to Dr. Harrison's paper last year. I was impressed with the fact that eclampsia was known as far as etiology is concerned. I have had many cases for four years and have had a good opportunity to observe in the charge of a number of waiting women. I have come to the conclusion that constipation is a more marked factor than uremia. This year I forced these women to take plenty of exercise. Formerly they would not show themselves, but now they are making clothes. They can go into a large open air bath where nobody can see them. In addition to this exercise, I keep the bowels regulated. Inspection has shown the character of the stools and reported on the diet. Judging from that, I am inclined to think the bowels are a more important factor. I think they have more influence than uremia. It has been demonstrated that in all cases of eclampsia there is some degree of necrosis in the liver. There is marked destruction of the liver, very little trouble in the kidney, and I think that a spasm comes from the intestines, carried by the blood and not from the liver itself.

In regard to veratrum veride; I have used the fluid

liberal doses, but I was disappointed; the results were not nearly so good as in ordinary depletion by opening the vein.

In regard to urea—I had a good bacteriologist make a careful analysis in each case, but no conclusion was reached. In his blood examinations he has never been able to detect any characteristic change in the blood that might lead him to possible proof. The ophthalmologist examines the eyes in every suspected case. In all our cases, we had only one with retinal hemorrhages. She might have had trouble with the kidney, thus accounting for the eclampsia; the others had not.

Edema of the extremities, we do not look upon as formidable. A well pronounced case: She passed 85 per cent. of albumin by volume. The urine was practically solid—small in amount. She was absolutely blind. It was impossible for her to close her lips. The legs and arms were abducted on account of the great edema. We had to puncture the labia to accommodate the child's head. The child weighed $4\frac{1}{2}$ or 5 pounds, eighth month.

A West Indian young woman of twenty-three, in town only one day from the steamer, secreting 50 to 60 per cent. of albumin per volume, came to the hospital. She had retinal hemorrhage, specks before the eyes, edema up to the shoulders. I kept her under observation. She aborted at four and a half months; the edema at once subsided.

In the first case the patient perspired so freely that in twelve hours the mattress was saturated. On the second day the albumin was only 5 to 10 per cent.

I have never found a case with marked edema or with urine of high specific gravity and a large percentage of albumin, that developed eclampsia. I do not believe that because a woman has had eclampsia with one pregnancy she will in another. I think with Dr. Bissell, that we will, by regulating the character of the stools, etc., be able to ward off the attacks of eclampsia. I speak from my own experience.

We found in all of the cases of marked edema, marked albuminuria. We allowed them to go on as long as they would. They probably reach the eighth month and then deliver themselves.

DR. EMMET.—It is a question whether we find more likelihood of toxemia in patients markedly constipated than in those in whom the material is held in a sluggish bowel, soft, with toxins ready to be absorbed. Some people are very constipated, yet in them the dry masses do not cause toxemia at all. I believe it is worse when poisons are there all the time in a condition to be taken up; if the bowels are not kept moving these poisons are absorbed.

If the theory of metabolism is correct it seems to me logical that the poisonous substances that emanate from the fetus and then are conveyed to the mother must have been first of all carried in the circulation of the mother to that of the fetus and then reconveyed back to the mother. What would cause these blood changes is at present only speculation and will remain speculation till the bacteriologist comes to our assistance.

TRANSACTIONS OF THE CINCINNATI OBSTETRICAL SOCIETY

Meeting of January 15, 1903.

The President, J. CARPENTER, M.D., in the Chair.

DR. E. GUSTAV ZINKE reported

TWO CASES OF SECONDARY BILATERAL SALPINGO-OÖPHORITIS
FOR TUBO-OVARIAN ABSCESES AND ONE CASE OF
CESAREAN SECTION.

I. Mrs. B., æt. 40, German descent, housewife, and personal history, was seen the first time June, 1898, had been in bed for several weeks because of pain in the both groins, fever, painful and profuse menstruation, and barren. One miscarriage, at the second month of gestation, fifteen years ago.

Physical examination revealed distinctly enlarged ovaries and uterine tubes with marked fixation and enlargement of the uterus. Temperature fluctuated between 100 and 101, pulse between 90 and 100.

Diagnosis—Bilateral tubo-ovarian abscess.

Treatment, suggested and urged: Salpingo-oöphorectomy. Patient refused because another surgeon, consulted a few days later, cautioned her not to submit to the operation.

Writer was called again to see the patient three months later (September, 1898). Examination then showed a fluctuating, painful tumor arising, seemingly, from the left side of the pelvic cavity and extending about $4\frac{1}{2}$ inches above the symphysis, and $2\frac{1}{2}$ inches to the right of the median line. Another large, firm, and tender mass filled, almost completely, the pelvic cavity. The uterus was crowded upward and forward, the os resting on the pubic joint. Temperature 103, pulse 112. Diagnosis as before. Advised now simply evacuation of the contents of the vagina, if sufficient; through the abdomen in addition, if necessary. I also stated to the husband that subsequent removal of the appendages and, possibly, the uterus may have to be resorted to in order to accomplish a perfect and permanent cure.

The patient was removed to the German Hospital and

upon September 10, 1898. The posterior cul-de-sac was opened first and about one quart of pus evacuated. The tumor, to be felt above the symphysis, diminished but little in size. By bimanual examination (the finger of one hand in the pus cavity just opened) I distinctly felt the uterus between my finger and the fluctuating mass move. Because of this condition, the abdomen was incised to the median line immediately above the symphysis, the edge of the wound stitched to the presenting tumor, which was then opened and the pus (about one pint) evacuated. Both abscess cavities were then filled with iodoform gauze.

The subsequent treatment consisted in removing the gauze at intervals of twenty-four hours, irrigating the cavities and re-packing the same. The first packing was not disturbed for three days. The patient made a very satisfactory recovery within six weeks.

For four years this patient enjoyed life and apparently good health. Menstruation was very regular but always painful. This was her only complaint.

She called me again October, 1902. Found her in bed complaining of pain in the right side of the pelvis. Temperature 101, pulse 95. Very nervous and apprehensive. Digital investigation of the internal genitalia proved the presence of a painful, slightly pulsating, and distinctly fluctuating tumor the size of a small fist, located to the right of the uterus. The latter was pushed to the left on account of it.

Both, because of the previous history of the case and the rise of temperature, I concluded this was another abscess. A proposal to open it again through the vagina was at once accepted. She was again taken to the hospital and the "abscess" opened, through the old scar in the vagina, October 20th. Instead of evacuating pus, about a teacupful of clear fluid escaped. I had punctured an ovarian cyst.

The temperature promptly subsided and the patient did very well for the next five days. Then the pain returned and the temperature slowly went up again. October 26th, upon digital examination, distended, tender tubes and ovaries were found. October 27th to 30th, pain not so severe; temperature subsiding. November 10th, temperature normal. Both tubes and ovaries were readily felt through the vagina. The whole internal genital apparatus was quite fixed and firmly bound together by adhesions; but less tender than before.

November 12th. Bilateral salpingo-oophorectomy. Adhesions very firm and extensive. Removal of the appendages very difficult. Operation much prolonged on account of the adhesions. Patient, however, reacted well and, a stitch-hole abscess excepted, made a good though tedious recovery. The specimen removed and presented here to-night leaves no doubt as to the diagnosis and excessive adhesions.

The case is reported for the purpose of showing the advisability of evacuating the pus first, in cases of this kind, either per vaginam or through the abdominal wall or both, as in this case.

Had this patient consented to an operation when I first saw her, no doubt the extirpation of both tubes and ovaries could have been done with ease and without serious danger to life, because they were then still small and not firmly adherent. When she returned the second time, the picture had changed. The left tube was enlarged and extending across the median line to the right, containing at least one pint of pus; the right, forced into the bottom of the pelvic cavity, contained one quart of pus. Complete removal of both pus-sacs, at that time, would (in all probability) have terminated the patient's life by way of septic peritonitis. The delay in diagnosis when she returned to the hospital, October 8th, I think is pardonable and could hardly have been avoided. The wisdom of the extirpation of both tubes and ovaries after perforating the ovarian cyst, cannot be doubted and is certainly justified by the good result obtained.

Mrs. S., æt. 22; German descent; one child six years old. Menstruation regular but very painful before, during and after the flow; very anemic and much emaciated. Temperature 103, pulse 110. She complains of constant pain in both groins and along the thighs. Duration of present trouble several months. The trouble began after her confinement years ago. Labor, prolonged and difficult, was followed by a very slow "getting up." Father died æt. 54, of influenza. æt. 29, of tuberculosis.

Physical examination, June 24, 1902, revealed a large, hard and semi-fluctuant mass, filling up the whole pelvic cavity. The uterus was crowded forward against the symphysis pubis and lay down that the external os presented at the vulva. The mass extended about two inches above Poupart's ligament on each side and could be readily outlined upon bimanual palpation. The thing was firmly fixed.

June 26th. An incision was made immediately below the umbilicus and cervix and fully one quart of pus evacuated.

On account of the patient's extremely exhausted condition, gauze packing was not touched for five days, when, little by little, some was removed each succeeding day. After that the mass was irrigated, in the beginning with a 1-per-cent solution of salicylic acid, later with sterilized salt water only.

She was discharged, very much improved in her general strength, July 17th or twenty-two days after opening the abscess. Uterus, tubes and ovaries were enlarged and could, at that time, be distinctly outlined. There was no change in the position of the uterus; it remained low down and against the symphysis pubis.

Because of the warm weather, and still marked fever, the patient, salpingo-oöphorectomy was postponed till the following month. She returned to the hospital October 8th, showing little improvement and again complaining of the same pain. Temperature 100.

Again a painful fluctuating mass was found behind the uterus and believed to be the same abscess opened in June. There was still a slight discharge when the patient was dismissed.

It is believed that the vaginal incision closed before the healing of the cavity was complete and the reaccumulation of pus was the result.

October 10th the pus was again evacuated by entering the abscess through the old incision. The cavity was again treated by packing and repacking with gauze after irrigation of the sac.

The patient improved rapidly after this and seemed perfectly well November 20th. But the uterus and its adnexa were still in the same position and condition as when the patient was sent home in July. It was deemed best to make a radical operation.

November 25th, both tubes and ovaries were removed and all adhesions separated, especially those that bound the uterus in its low and anterior position. Patient made a prompt recovery and went to her home, January 1, 1903, once more a well woman.

DESCRIPTION OF BOTH SPECIMENS.

No. 1 is from Mrs. B:—L, the left; R, the right tube and ovary. Both tubes showed marked enlargement, distended with pus. The left tube shows, about midway between the fimbriated and uterine extremity, a marked protuberance; this is the part by which it was adherent to the abdominal wall and through which the pus was let out four years ago. The ovary is well shown on this side. The right tube and ovary were found low down in the cul-de-sac of Douglas. In opening the abscess the ovary was struck first, then the tube. Both ovaries show cirrhotic changes.

No. 2 is from Mrs. S. The macroscopic appearance of this specimen has been destroyed because of the microscopic examination that was made by Dr. Rowe. The tubes were not implicated to the same extent as in the other specimen. Dr. Rowe reports as follows:

Ovaries are enlarged and show numerous small cysts filled with a colloid material. These cysts are from $\frac{1}{8}$ - $\frac{1}{4}$ inch in diameter. Small abscesses are also found in the ovaries. These vary from $\frac{1}{4}$ - $\frac{5}{8}$ inch in diameter. The abscesses are not numerous, possibly three or four in number. In one of these the pus was hardened in situ and section examined. Section showed the microscopic appearance of pus—leucocytes. The ovarian tissue is cirrhotic and shows in places considerable infiltration with small round cells. Graafian follicles are very scarce—but a few small ones were observed near the surface.

The tubes show infiltration of the mucosa with small round cells and some purulent exudate into the lumen.

A CESAREAN SECTION.

Mrs. S., æt. 33; of good build and well nourished; married fifteen years; seven children, of whom four are living; one died æt. six months and two were born dead.

History of labors: First confinement, thirteen years ago, at term. Labor very slow. Child still-born. Midwife in attendance.

Second confinement, twelve years ago, at term. Labor very protracted and painful. Large caput succedaneum. Midwife sent for physician. Delivery instrumental. Child born asphyxiated, but resuscitated and living to-day.

Third confinement, ten and one-half years ago, (eighth month), spontaneous, easy birth. Child very s living, but "delicate" and "nervous." Midwife in atten

Fourth confinement, nine years ago, at term. Instru livery. Hydrocephalic head. Child died æt. six m cholera infantum.

Fifth confinement, eight years ago. Labor tedious and No instruments. Child living and well.

Sixth confinement, five years ago. Labor natural but very painful. No instruments. Child living and well.

Seventh confinement, two years ago. Four doctor Embryotomy; operation lasting three hours.

Several months after the last labor (December, 1890 began to have severe pain in the back and soon thereaf fensive, sanguinous discharge from the vagina. The called in removed "a tumor and a portion of the ne womb." The discharge ceased and patient felt fairly w

The writer saw patient the first time October, 1901. six months. General health fair. Uterus in median lin mal shape, freely movable, not tender; fetal movements heart's impulse strong and regular. Presentation vert tion L. O. A. Breasts well developed. Appetite good regular. The promontory of the sacrum could not b with the index finger. The vaginal vault tapered into a not admitting the tip of the examining digit. There wa of a cervix to be felt. The external measurements of were as follows: Distance between ant. sup. spine between the iliac crests—27 c.m.; between the trochanter ext. conjugate—19 c.m.

Diagnosis: Pregnancy of six months duration. Sli minor pelvis. Cervix absent. Ring of cicatricial tissu in the vaginal roof.

The cervix had, probably, been torn and was partly early labors. Cicatrices were, probably, present at the and, for this reason, dilation was incomplete and the to be mutilated in order to effect delivery. What ther of the lacerated cervix sloughed away within a few mo this event, creating the condition above described.

Patient was kept under observation and sent to th Hospital January 21, 1902, two weeks prior to the d pected delivery. Cesarean section was contemplated. of the os did not occur. Both patient and her husband

Labor began about noon January 27th. Pains re gradually growing stronger. Membranes ruptured spor the next morning. But, as the patient's condition wa way satisfactory and I extremely anxious to have as r tion as possible, I concluded to wait. Patient contin well till about 3 P. M., when she complained of chilli frequent desire to urinate and of a muco-sanguinous from the vagina. The hard ring (which I took to be th of the vagina with the internal os), admitted the finger

not enough to palpate the presenting head. At this juncture Dr. Bonifield was called in consultation and concurred in the diagnosis and the performance of Cesarean section as the best and safest operative expedient to save both mother and child.

At five o'clock all preparations for Cesarean section were complete and the patient ready for the operation, which was begun ten minutes later.

The Saenger method of performing hysterotomy was strictly followed with this exception: catgut was used for suture material. The tourniquet was not applied. The uterine incision, limited to the upper and central zone of the uterus, was made directly in the median line, and closed by nine deep and twelve superficial sutures. Uterine cavity was not douched. The abdominal wound was closed by the "three-row" suture (peritoneal, aponeurotic and cutaneous).

Duration of operation thirty-five minutes. Child, female, lived and weighed eight pounds. Patient rallied from operation without the least shock and, with the exception of a stitch-hole abscess in the abdominal wound, made an excellent recovery. Patient visited my office with her baby, now one year old, two weeks ago.

DR. RUFUS B. HALL reported two cases of

RUPTURED TUBAL PREGNANCY.

and showed specimens.

Case 1.—Mrs. S., æt. twenty-eight, mother of two children, the younger three years old, was seen in consultation in Chillicothe, Ohio, November 15, 1902, with the following history:

She had been conscious of some pelvic discomfort for a year or more. She had never suffered any serious disease. Menstruation had been irregular, sometimes coming two or three days too early and the flow lasting a day or two longer than usual. Otherwise she enjoyed good health. She had missed her period about three weeks when, at 8 p. m., November 13th, she had a severe pain in the abdomen and in a few minutes went into collapse. She rallied from this, however, in a few hours under hypodermics of morphine and stimulants administered by her physician, Dr. Lash. At 8 a. m. on the morning of the 14th she had a second attack of pain and the collapse was profound. She rallied slowly. The pulse was feeble and rapid through the day but in the evening it had entirely disappeared at the wrist. She was given normal salt solution under the breast and hypodermics of strychnia. I was asked to see her in consultation, which I did on the morning of November 15th. At that time she had no radial pulse, the heart's action was very rapid and very feeble at about 140 to 150 per minute. She was very pale, showing the great loss of blood. Under large doses of strychnia introduced hypodermically and the normal salt solution under the breasts, by two o'clock, November 15th, the radial pulse could again be felt but not counted through the minute for the intermissions. I advised against an immediate operation because her physical condi-

tion was such that it was probable she would have died if an anesthetic had been attempted. I also reasoned that not more than three or four weeks pregnant and my conviction convinced me that these patients who are not further advanced pregnancy rarely die from hemorrhage at the first attack. I advised that the patient be kept quiet and be subjected to operation as soon as her physical condition would justify an operation. I reasoned that the hemorrhage had probably stopped several hours before my visit and would not repeat for a week. Her condition gradually improved until November 22, 1900, when an abdominal section was made and three or four pints of blood and the ruptured tube were removed. The patient made a rapid recovery. You will observe that there is a small rent, half an inch in length, on top of the tube about in the middle third—this is blocked by the exuding membrane.

The point that I wish to emphasize is the fact that an operation was advised against at the time of my visit because of the loss of blood, the profound shock and the absence of a pulse which was absent for more than twenty hours. I think these patients should not be operated on if the condition is due from the loss of blood that an anesthetic would likely produce. On the contrary, they should be given time to rally, even if it is probable, as it was in this case, that the hemorrhage ceased several hours before seeing the patient. If I had seen the case before the great loss of blood had taken place, if the condition had justified an anesthetic I would have had an immediate operation.

Case 2.—Mrs. S., æt. thirty-five, married fifteen years, four children and no miscarriages, patient of Dr. Roush of Xenia, Ohio, and Dr. McClellan of Xenia. She had been pregnant for three or four weeks and on the evening of November 10th was seized with severe pain and collapse. Dr. McClellan was asked to see her in consultation, which he did on the morning of November 11th. He made a diagnosis of ruptured tubal pregnancy. I was called and came and operate her, which I did at her home on December 1st.

When I visited the patient there was great prostration, pallor and a rapid pulse of 136, very feeble. Every precaution had been made for an immediate operation. The patient was ethered and placed upon the table and a section was made. There was about three pints of blood clot in the pelvis and the bleeding had stopped, but when the tube was brought out at the incision and the blood clot squeezed out free bleeding commenced which could be easily controlled by grasping the tube. The tube was tied off and removed. The tube here presented, like the preceding one, is softened on the rear surface—but the rent is at the external third of the tube. The patient made a prompt and uninterrupted recovery. This patient was operated immediately because her condition was such that she could take an anesthetic without any undue risk and was the gainer by it.

C. L. BONIFIELD, M. D., reported

A CESAREAN SECTION.

On the night of October 25, 1902, I was summoned to see Mrs. T. D., in consultation with Drs. Richards and Schoolfield. I reached the bedside about 2 a. m. and found the patient had been in labor six or eight hours. She was thirty-two years old, mother of two children, the youngest of which was fourteen months of age. She had been delivered of this child in New York and while the labor was tedious, lasting twenty-six hours, on account of early rupture of the membranes, the use of instruments was not necessary and the physician in attendance made no mention of anything abnormal to the patient or her family.

When Dr. Richards was called at the beginning of labor he found a large fibroid filling the hollow of the sacrum and obstructing the pelvic inlet to such an extent that he believed delivery per vias naturales to be impossible. He asked Dr. C. B. Schoolfield, to see her in consultation, who verified the diagnosis and expressed the same opinion as to the possibility of delivery. I was asked to see the case for the purpose of doing a Cesarean section if my opinion coincided with theirs. We placed the patient under an anesthetic to make a more careful examination and ascertain if it were possible to lift the tumor up out of the pelvis. We found this could not be done and recommended that the patient be sent at once to the hospital and operated upon as soon as she could be made ready. The patient objected to going to the hospital and after much time spent in persuasion Dr. Richards and his two consultants declared that unless she would go to the hospital and submit to the necessary surgery they could not take charge of the case. This had the desired effect and she was removed to Speer's Hospital, first having been given a full dose of morphine hypodermically to stop labor pains. By the time everything was in readiness it was so near dawn that we decided to wait for daylight to operate. The operation was performed about 7 a. m., the patient having been in labor about twelve hours, the pains having been strong and the os having been pretty well dilated, but the head not even having begun to enter the pelvis. The usual free incision was made in the abdominal wall, warm gauze sponges were packed around the uterus. Free incision was made in the anterior wall of the uterus and the child lifted out. The placenta and membranes were delivered without difficulty and the uterine incision closed as rapidly as possible with interrupted sutures of catgut including all of the wall of the uterus except the mucous membrane. A second row of sutures of the same material was inserted, including only the peritoneum. The abdominal incision was closed in my usual way, their sutures of catgut in the deeper structures, and silk worm gut in the skin. The patient did admirably well. The child was made to breathe with little difficulty and both it and the mother are very well at the present time.

No effort was made to remove the fibroid tumor because it seemed that it could not be done by any other procedure than a

pan-hysterectomy—this I regarded as an exceedingly dangerous operation under the circumstances and thought it wise to wait and see what effect involution might have on the tumor, hoping a myomectomy might then be possible. I regret to say that I have not had an opportunity to examine the patient recently.

CASE OF SARCOMA OF BROAD LIGAMENT ARISING FROM PERIOSTEUM OF SECOND SACRAL VERTEBRA.

Miss E. N., aged thirty-seven, came into my service at the Cincinnati Hospital on September 6, 1901.

There was nothing unusual in her family history, menstruation having begun at fourteen years of age; had been regular and normal until two years ago. After that time the flow had recurred for the most part at regular intervals, but was at times excessive. Occasionally she menstruated twice each month.

About two years ago she noticed some enlargement of the abdomen, to which she called her mother's attention; but nothing was thought or said about the matter until last February, when the enlargement began to increase very rapidly, and continued to do so until the time of her admission to the hospital.

During the past few months she had suffered from almost constant pain in the lower abdomen, and had become very nervous, and in a condition of general distress. Her appetite was fair, bowels constipated. There was considerable swelling in the right foot and leg.

Upon physical examination this patient presented a hard, smooth, doubtfully fluctuant tumor, occupying almost the entire lower abdominal cavity up to the level of the umbilicus. It was absolutely immovable, and its greatest prominence was to the right of the median line. Digital examination, per vaginam, came upon a fluctuating tumor extending down to within one inch of the posterior commissure. The finger could follow the vagina behind the pubes, and toward the left; but the uterus could not be felt, the tumor entirely filling the pelvis, and lifting the uterus beyond reach. Careful palpation over the abdomen disclosed a mass in the left iliac region, reaching to the level of the spine of the ileum, which, being about the size and shape of a normal uterus, was believed to be that organ.

Extending from the upper part of this mass, over the smooth contour of the tumor, was a movable band under the abdominal wall, going up to the right of the umbilicus. This was believed to be the right ovary and tube.

The small needle, however, introduced into the abdominal tumor, did not obtain any fluid.

Diagnosis of the tumor of the right broad ligament was made, and from the history of its origin as well as from its physical signs, a suspicion of malignant disease was entertained.

Accordingly, on September 12th, the patient was prepared for laparotomy, and also for vaginal section. It being thought that possibly by collapse of the tumor produced by vaginal section,

we might make out more clearly the character of the abdominal mass, and determine what further procedure would be wise.

Upon vaginal section a quart of straw colored fluid was evacuated, and the introduction of the finger into the opening made, came upon a semi-solid mass which bled rather profusely.

The tumor in the abdomen was not materially collapsed. It was decided to open the abdomen. When this was done, a tumor, upon whose crest the right tube and ovary were found, and whose upper surface was a purplish hue, and numerous large vessels could be seen in every direction. In introducing gauze sponges to hold the intestines away in order to introduce the hand behind the mass to determine positively its attachments, such hemorrhage was produced as made it absolutely necessary to proceed with the enucleation.

An incision was made over the top of the mass, and its edges grasped by large forceps in the hands of the assistants. Then I ran my hand between the capsule of the tumor and the mass, and as rapidly as possible shelled it out. No great difficulty was encountered until in the very bottom of the pelvis, directly in front of the sacrum, I came upon a firm attachment that made it almost impossible to lift out the growth. In doing so my fingers came upon the sacral vertebra, and found them to be very much eroded and very rough, and no line of cleavage. I tore the mass loose, however, and packed the cavity rapidly with sponges. During all of this procedure hemorrhage was frightful; and by the rapid use of large sponges it was finally arrested, although the patient was in extremis. The capsule was then sewed to the lower portion of the abdominal incision and the incision closed as rapidly as possible.

The patient was taken to her room, but only lived an hour, death being due it seemed, to exhaustion incident to hemorrhage.

The tumor weighed ten pounds, and was found to be a small spindle shaped sarcoma.

It was my belief at the close of the operation that it had sprung from the body of the second sacral vertebra.

A post-mortem was made, and a portion of the second sacral vertebra removed for microscopic investigation.

Dr. Frank Fee made the investigation, and found that the tumor had arisen not from the bone, but from the periostem of the sacrum, which was clearly a tumor in the broad ligament, but not of the broad ligament. The cyst which was evacuated through the vagina, and which caused difficulty in diagnosis, was probably a cyst of the broad ligament, or a cystic collection in that portion of the capsule of the tumor.

DISCUSSION.

DR. J. M. WITHROW.—The Society should be congratulated for the unusual number of very interesting cases which have been reported. I would like to recall a report of a case which I presented to this Society, in which we had a pregnancy in a prolapsed uterus. The case was one in which a high amputation of the cervix had been performed. The patient, after twenty-four hours of labor,

had no dilation of the cervix, or not enough to admit the point of the index finger, and the cicatricial tissue in the cervix looked and felt like a piece of leather with a small hole in it. This case was in the Cincinnati Hospital. The question was raised as to the advisability of Cesarean section. It was deemed wiser, safer, and better, to make incisions of the cervix. These were made in four directions one-half inch long each, in what might be designated as the northeast, southwest, northwest and southeast portions of the ring—then with a little dilation by the hand I put on the short forceps and delivered the patient. Every one of the incisions tore. One of them, the southeast incision, tore for an inch and a half. Immediately after delivery of the placenta I proceeded to sew up the incisions with catgut. The delivery was easy, the patient made a perfect recovery and the child lived. Each case of that kind should be a law unto itself but I would like to impress upon the gentlemen of the Society that dilatation of the cervix in such a case as that to which I have just referred was so easy as to be really remarkable, and while in the case of Dr. Zinke there might have been an entirely different condition, yet it would seem to me that this procedure should have been considered.

DR. RUFUS B. HALL.—I will confine my remarks to the two cases of Cesarean section. In the first case reported the patient was the mother of several children and she had a great deal of cicatricial tissue in the cervix. A Cesarean section was performed upon her, but the doctor did not tell us of any further operation than this. I claim that we have no right to do an operation like Cesarean section and leave the woman so that she may again become pregnant, unless there is some *special* reason why she should bear children. It would not complicate the recovery of such patients to ligate the tubes as they enter the uterus and then divide them, leaving her so she could menstruate but not bear children.

Referring to the second case reported, I believe that a hysterectomy or a myomectomy should not have been performed, under the circumstances. The tubes should have been ligated and divided at the uterine end so that the operation would not have to be repeated.

DR. C. B. SCHOOLFIELD.—What I shall say relates chiefly to the cases of Cesarean section. The case of Dr. Zinke from the history I think was quite a different one from that of which Dr. Withrow speaks of having in the Cincinnati Hospital. Dr. Zinke's was one of cicatricial contraction and sloughing of the cervix, the entire cervix, while that of Dr. Withrow was one of amputation with a procidentia—probably there had been an elongated cervix. I think the Doctor is to be congratulated upon the choice he made in the two procedures.

In the case reported by Dr. Bonifield, he was of the opinion that the child could not be born naturally and that a Cesarean section would have to be done. He called me to see the case, and I agreed with him.

In regard to tying the tubes to prevent pregnancy from oc-

curing again. In this case there were several reasons why it should not be done. First, the woman was a strong, robust female, who had been delivered before of children, and it was likely that she could be operated upon again and the tumor removed. Then she was a Catholic and you know that a thing of that kind is something to which they are very much opposed. Again, the husband was not present to decide that matter. It was Dr. Bonifield's and Dr. Richards' opinion at the time, and I believe they were right, that it was best to leave the conditions as they were, and simply to remove the child, which was done. We know Cesarean section has been done on patients numbers of times and they have recovered, and I do not see why that might not be done in this case. The woman got along all right except for the septic condition which occurred later.

I do not, however, think we have any right to prevent women from bearing children where it is possible for them to bear living children.

DR. CHAS. L. BONIFIELD.—I do not believe it is my business, or my duty, to render any woman so that she cannot have children simply because she asked me to do so, even though pregnancy is attended with a good deal of danger. It is her business, and her husband's business to keep her from becoming pregnant. If I wished to go around and render women incapable of becoming impregnant simply because they do not want to have children, I could be doing a larger business than any member of the Cincinnati Obstetrical Society. My patient had been delivered of a living child before this tumor attained its present size and it was my opinion that the tumor could be removed and the woman left in condition to bear other children and give birth to them in the natural way. This being the case I hold it would have been a crime to have unsexed her or in any way rendered her sterile. But if I did not hold these views, which some may regard as extreme, there were other reasons why it should not have been done in this case. It is a rash man that will unsex a married woman without the consent of her husband or herself or both. Especially so if he is not an acquaintance or friend of long standing. I was unknown to these people when called into the case. The woman was not asked about her willingness for such a procedure should it be advisable when the abdomen was opened and had she been she was in no frame of mind to give the question serious consideration. Her husband was in New York and his consent could therefore not be obtained. They were good Catholics and we all know the teaching of that church is very strict in such matters.

If the patient does not take my advice and have the tumor removed and does become pregnant again that is her fault and not mine. She has received the proper advice. If she is not governed by it she has no one to blame but herself.

In regard to removing the other appendage when operating for ectopic gestation I do not think it is justifiable as a routine practice. Whether the patient is apt to have an ectopic gestation on

the other side depends a good deal on the disease that the predisposing cause for this condition. The other tube more apt to be involved if the gonococcus has been the trouble than if the disease is due to some other infection. I have had patients give birth in a normal way to healthy children after having one appendage removed for gonorrheal infection and I should therefore hesitate to remove an appendage if I could discover no disease by infection and with palpation the abdomen open.

In reference to the point which Dr. Hall and Dr. Johnstone have been discussing. Theoretically Dr. Johnstone is to believe that the reason the tube seals itself so rapidly at the closed end is to prevent drainage into the peritoneal cavity. The fact that the wave-like movements of the ciliated epithelium of the tube, are towards the uterus leads us to believe that the current is always from the peritoneal cavity into the uterus. After the discharge of the ovum it would follow this current. My experience is a great teacher, and if Dr. Hall continues to have the experience which he has spoken of to-night—and if it should do arise whereby I might feel justified in preventing a woman from becoming pregnant (and I do not see now how the conditions could arise), I shall adopt his method.

DR. GUSTAV ZINKE.—In my first successful Cesarean section I ligated the tubes and then divided between the ligatures. I saw the woman about six months ago and she has had a child. It is a convenience from the division of tubes. The reason I did not do the same thing in this patient was, first, she was a Catholic and I failed to obtain permission to render her sterile before the operation. Should she become pregnant again I have no doubt that she would promptly recover under a second section.

DR. RUFUS B. HALL.—In reply to the criticism that I have made in reference to ligation of the tube near the uterus will I differ entirely from the views expressed here in reference to the results of this operation. Formerly I always removed the opposite tube and ovary in an extra-uterine pregnancy, if the patient was markedly diseased, for fear of a second pregnancy developing in that tube. After a few years' work, when the opposite ovary looked comparatively healthy I left them, but when the cases I had to make a second operation for ectopic pregnancy I felt that I owed my patient protection from such an operation a second time. It is by exchange of opinion in this way that we make progress. After I had left the tube and ovary in place in several cases and tubal pregnancy occurred on the opposite side I was justly criticized by my patients and their friends for allowing such a condition to occur again. After a patient has an ectopic pregnancy on one side you may well suspect that the other will have the same condition develop on the opposite side. I do not do something to that tube or ovary to prevent it. In such cases I always talk to the husband as well as to the patient and tell them that there is a possibility of the same thing

on the opposite side later, and ask them if they will have the opposite ovary removed. They do not want it removed if it can be avoided. I then tell them that I can ligate the tube near the uterus and leave the patient so she can still menstruate, which is, of course, a source of great satisfaction to her. Since I adopted this method I have operated upon fifteen or twenty patients, and with but two exceptions they have all said that I should fix them so that there would be no danger of their having a second ectopic pregnancy. The women upon whom I have done this ligation of the tube, so far as I know, have had no symptoms of pelvic disease or distended tubes. I believe Dr. Johnstone's theory is wrong and that a woman does not have hydrosalpinx because the tube is ligated next to the uterus when the fimbriated end of the tube is patulous.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of December 3, 1902.

The President, DR. PETER HORROCKS, in the Chair.

DR. ERNEST HERMAN and DR. RUSSELL ANDREWS read a paper on

A CONTRIBUTION TO THE NATURAL HISTORY OF DYSMENORRHEA.

The authors compare a number of cases of dysmenorrhea cured by dilatation of the cervix with a number of others in which dilatation of the cervix produced no benefit. They find no reason to think that dysmenorrhea curable by dilatation is frequently associated with imperfect development of the uterus.

They find that dysmenorrhea curable by dilatation begins with the establishment of menstruation in about two-thirds of the cases, and is acquired later in about one-third; that it almost always begins before the age of twenty-five, but may be acquired at any age.

They find that the result of treatment is not materially affected by the length of time the dysmenorrhea has lasted, the age of the patient when treated, or the duration of her married life.

They find that in most cases cured by dilatation the time of commencement of pain is very near the time of commencement of the flow, while in most of the cases not cured by dilatation the pain begins two days or more before the flow. In half of those cured by dilatation the pain is over in less than two days; in more than half of those not cured by dilatation the pain lasts more than four days. In four-fifths of those cured by dilatation the pain

is paroxysmal; in three-fourths of those not cured by it is constant. In most of the cases cured by dilatation is not relieved by lying down.

The authors give details showing the severity of the case. They find that only a few patients were known to have adhesions, and that in only a few were there physical signs of disease. They find no evidence of such narrowing of the canal as to mechanically hinder the flow of blood through it. They think it possible that some degree of smallness and rigidity of the canal may hinder the physiological dilatation of the cervix which should take place during menstruation, and so cause the painful contractions of the uterine body; but they are unable to adduce evidence of this.

They give tables showing the known duration of the cases on which the paper is based, and the number of cases in which pregnancy followed dilatation in married women previously sterile.

THE PRESIDENT agreed with the authors that, speaking generally and broadly, it was true, that when the pain in dysmenorrhea was paroxysmal, it was more likely to be of uterine than of ovarian origin. But like most other things in medicine and obstetrics, it was impossible to deduce definite laws, having to admit numerous exceptions. Hence for the purpose of treatment, it was of little use in the majority of cases to try to make a diagnosis. For, even if a case presented features pointing to other than a uterine cause for the pain, it was impossible to say beforehand that dilatation would not cure the pain. He gave details of a case of undoubted dysmenorrhea, when there was a congenital absence of the uterus, and where the uterus was represented by a mere band, where the pain every month was so severe that the patient was in agony and was obliged to go to bed for several days.

The ovaries, after every other means had been tried, were removed by abdominal section, and the patient had never been cured since, the operation having been done in 1898.

Again, he asked for information as to the method of dilatation. The authors spoke of dilating the cervix. Did they dilate the cervix, or did they dilate the uterine cavity as well? Did they use Hegar's dilators and, if so, to what number did they go?

He believed that, whatever theory in regard to the production of the pain or of its relief by dilatation might be correct, it could be found that the alleviation or cure of the dysmenorrhea was owing to laceration of the fibres.

For this reason, he had himself adopted a modification of the operation. That is, in addition to slitting the cervix upwards from the os externum up to the posterior fornix, he made a counter incision to the left or to the right of the cervix thus divided the cervix into two unequal parts, a quarter and three-quarters respectively. His object in doing this was to cut through the circular fibres twice. For he had found by experience that Sims's operation, even though it relieves

a time, was apt to be followed by a recurrence of the dysmenorrhea, owing to the cicatrization of the parts. Whereas, by cutting through the circular fibres twice, each set—that is the set in the one-quarter segment and the set in the three-quarter segment—contracted, and even when the active contraction passed off, remained shortened, having no longer power to approximate. Hence the increased space in the os externum and cervical canal remained more or less permanent. In this way he had treated many cases with conspicuous success, and certainly with better results than by mere dilatation. For obviously, if dilatation were carried out to any slight degree, the uterus was bound to contract again and the condition would soon be as before whilst, if carried to a considerable extent, the parts were more or less lacerated. His colleague, Dr. Galabin, was in the habit of dilating with Hegar's dilators, to a considerable degree, he thought to No. 19, and, as a rule, the parts were lacerated, as indicated by a dilator of a higher number, passing more easily than the one immediately preceding it.

Then again, the authors spoke of cases of stenosis of the os uteri as existing only in pictures in text-books.

He could not agree to that for he had seen cases of pinhole os, where it was impossible to pass an ordinary uterine sound, and where there was great dysmenorrhea. Moreover, such cases were very satisfactorily treated by a modified Sims's operation.

Again, he disagreed with the remarks that it was of no importance as to whether a patient passed membranes or not, inasmuch as the treatment was the same, namely dilatation.

His own experience was that dilatation, or a modified Sims's operation, was practically useless in membranous dysmenorrhea. In all such cases, he recommended careful and thorough curetting and the application of a strong caustic, such as iodised phenol or pure carbolic acid.

The authors had suggested a new theory as to the cause of the pain in these cases of uterine dysmenorrhea, namely, that it was due to the cervix not dilating when the fundus and body contracted.

He did not think this was a correct expression because the law was that, when the fundus and body of the uterus contracted, the cervix *relaxed*. Then, when in this physiologically relaxed condition, it could be easily dilated, if there were anything to dilate it, such as the bag of water, or if the amnion had ruptured, the child's head, etc. Certainly there were some longitudinal fibres in the cervix, which could draw it open even in the absence of these dilating forces, but they only came into operation at a late stage. Hence one did not find the os uteri patent in these cases of uterine dysmenorrhea.

Finally, he thought that, whilst the menses when fluid found a free enough exit, they might, when clotted inside the uterus, acquire uterine contractions that amounted to miniature labor pains, and which were as painful sometimes as labor pains, to expel the clots.

DR. HEYWOOD SMITH drew attention to the association between dysmenorrhea and antelexion of the uterus.

In cases of stenosis of the internal os, he did not find dilatation alone sufficient, but supplemented it with slight bi-laterally, followed by forcible dilatation and the insertion of a glass stem.

DR. BOXALL doubted whether, in such a case as that reported by the President, cessation of dysmenorrhea, after removal of the ovaries, could be rightly regarded as affording conclusive evidence that the pain had been of ovarian and not of uterine origin. He also quoted a case in support of his argument. He also drew attention to the fact that dilatation for dysmenorrhea was of little use in cases of ill-developed uterus.

DR. ALEXANDER DUKE had had excellent results by dilatation and dilatation combined, followed directly by the insertion of a spiral wire stem.

DR. ARTHUR GILES thought that the treatment by dilatation was not suitable for cases of dysmenorrhea in which the pain was chiefly before the onset of the flow. He agreed with the view that obstructive dysmenorrhea was a fallacy, and he did not share the view which the authors appeared to attribute to him, that antelexion could cause obstruction, or was necessarily a cause of dysmenorrhea.

DR. LEWERS found that the extent to which the cervix in nullipara could be dilated varied considerably, but in many cases much higher degrees of dilatation could be secured with little difficulty.

DR. GALABIN said that he thought that the descriptions of symptoms, as to whether a dysmenorrhea was due to painful uterine contractions, apt to be fallacious. The pains were continuous and began several days before the flow. It doubtless be inferred that the cause of it was congestive and inflammatory. But many women described the pains as being intermittent, spasmodic, or paroxysmal. On cross-examination, however, it often appeared that the spasms of pain lasted for an hour or more and all kinds of intermediate conditions were possible. Such pains could hardly be due to uterine contractions, but only spasmodic in the sense in which a toothache or any other pain might be spasmodic. His experience was that the majority of cases of dysmenorrhea, which could be ascribed to uterine contractions, and with certainty to painful uterine contractions, were of the small one, and that much more frequently some inflammatory or congested condition of the endometrium was an element in the case. This was confirmed by the fact that uterine leucorrhoea was often associated with dysmenorrhea in young unmarried women, and that not infrequently a patch of granular inflammation was found around the os, really an adenomatous hyperplasia of the uterine membrane.

Accordingly, he thought that the addition of curetting to dilatation in the majority of cases increased the efficacy of

tion. He did not usually carry the dilatation beyond about No. 13 or 14 of Hegar's dilators.

This did not generally lacerate the external os. Of late years he had used incisions of the vaginal portion only when the external os was manifestly minute. He then excised a V-shaped piece from the posterior lip, and generally united external and internal mucous membrane by sutures.

The authors appeared to assume that, if dilatations cured the dysmenorrhea, it was a proof that the pain was due to painful uterine contraction. He did not think that this held good universally; for dilatation might affect the uterus in other ways. If there were endometritis, the freer drainage, so produced, might enable a catarrh to get well, which would have remained chronic while sufficient mucus was retained, to form a nidus for microbes.

DR. W. S. A. GRIFFITH thought that the different degrees of pain which patients suffered depended more on the nerve sensibility of the individual than on structural variations of the uterus and its appendages. Judicious treatment of points of general health was most important. Dilatation was a valuable method in some of the more severe and persistent cases.

DR. BRIGGS alluded to the uncertainty of results; but agreed in the main with the authors of the paper in their conclusions as to the cases of dysmenorrhea most likely to be benefited by dilatation or section of the cervix. He desired to speak on behalf of the Liverpool practice of a high degree of dilatation supplemented by a deep posterior section of the cervix throughout its entire length. The graduation of metal bougies over four sizes, which he first adopted in 1889—had simplified dilatation by minimizing laceration. Notwithstanding the complete character of the Liverpool practice, the results, he feared, were not more but less encouraging than those of the authors of the paper. He had some hesitation in accepting spasm as more than a minor portion of the pathology in cases apparently spasmodic.

DR. HERMAN said that the authors were aware of the difficulties and uncertainties referred to by the President and Dr. Galabin, and had alluded to them in their paper. The pain of pelvic congestion was, as they said, often described as coming and going; but on close inquiry it would be found that each attack was said to last an hour or two; it was not a sharp short spasm like that of uterine colic. In the case on which the paper was based, the dilatation was of both the external and internal os, and was done with bougies graduated in size according to the catheter scale. Successive sizes were passed until considerable resistance was met with. Usually, it was carried up to No. 12 or higher. After such dilatation, the cervical canal remained larger than before for at least some months. This he had verified by measurement. When he commenced practice, the regular treatment for bad cases of dysmenorrhea at most hospitals, certainly at the London, was division of the vaginal portion. He was led to abandon that by meeting with cases in which the vaginal portion had been divided without benefit, but which were cured by dilatation with bougies

of the os internum. He would like to know what the President attached to the word "permanent," when he spoke of "permanent cures" of dysmenorrhea. He (Dr. Hermann) thought the use of the word "permanent" was only justifiable when the patient's condition was known up to the time when menstruation ceased. It was so difficult in consulting practice to wait as long as this, that he thought cases known to be cured by permanent cures must be few. He had himself records of one case in which the cure of dysmenorrhea lasted until the menopause. He would like to know how many cases of the "permanent cure" of membranous dysmenorrhea the President had seen? He had seen cauterizing and caustic fail, not only in his own hands, but in the hands of others. He thought dilatation was the more effective cure of membranous dysmenorrhea. He would also like to know how membranous dysmenorrhea was to be prevented. Like Dr. Fife and others, he had seen cases in which the os exteri was so small that it would not admit a probe, but the patient menstruated without pain. In such cases, he thought it was better in consulting practice to divide the vaginal portion, in order to prevent obstruction in the first stage of labor. When clots were passed from the uterus, he knew no sure way of telling whether the blood had come from the uterus or in the vagina. Many small lumps, described by some patients as clots, if carefully examined, would be found to be rolled up membranes.

The President's distinction between "dilatation" and "division" seemed to him verbal rather than real. He (Dr. Hermann) had shown in a former communication to the Society that the cervical canal did enlarge during menstruation. He agreed with Dr. Heywood Smith and Dr. Giles that antelexion was not associated with dysmenorrhea. But his investigation and that of Dr. Heywood Smith showed that it was present with exactly the same frequency in women who menstruated without pain: and these facts had not been controverted. If Dr. Heywood Smith and Dr. Giles would study the frequency of antelexion without dysmenorrhea, they would change their views. Seeing that most patients with dysmenorrhea were girls, who except for their monthly pain were in perfect health, he did not think with Dr. Galabin, that dilatation was frequently suffering from endometritis, nor that dilatation was necessary because it favored the cure of endometritis. He agreed that it was difficult to distinguish the cases that could be cured by dilatation from those that could not: and it was the object of this paper to assist in this difficult task. He agreed with Dr. Heywood Smith that the severity of menstrual pain depended much on the irritability of the patient.

DR. VICTOR BONNEY read a short communication on a cyst containing a large number of epithelial balls.

In the discussion which followed, Mr. Alban Doran, Dr. J. M. Colm, Mr. Butler Smythe, and Dr. Spencer took part.

DR. GILES showed a specimen of fibroma of the ovary. The case was discussed by the President, Dr. Briggs, and Mr. Heywood Smith.

DR. LEWERS, DR. W. C. SWAYNE, and DR. SIKES also showed specimens.

Meeting of Wednesday, January 7, 1903.

The President, DR. PETER HORROCKS, in the Chair.

DR. ROBERT JONES opened a discussion on

PUERPERAL INSANITY.

This paper was based upon a personal experience of 259 cases of puerperal insanity, divided into—120 cases during the actual puerperal period, 83 during lactation, and 56 during pregnancy.

Insanity was stated to occur once in every 700 confinements.

Insanity was stated to be of a characteristic form after confinement, amounting to an almost nosological entity; but this was not the case during pregnancy nor during lactation, there being no definite type of insanity occurring in connection with these two stages. The divisions were, however, more convenient than typical.

The following propositions were advanced by the author:

1. The insanity of pregnancy is more common in first confinements among single women, the disappointment, shame, and disgrace of illegitimacy being an important factor in the mental breakdown.

2. During pregnancy the mental condition is more often acute melancholia than acute mania, and suicidal symptoms, which occurred in 41 per cent, have to be carefully guarded against.

3. The insanity of pregnancy is divided into that occurring during the early months and that occurring during the later months, and in these the nearer the insanity in point of time to the confinement, the more acute are the mental symptoms. Insanity is not more frequent when the sex of the child is male.

4. The insanity of the puerperium comes on after the first confinement in 33 per cent of the cases, and supervenes suddenly rather than gradually.

5. The cases which occur during lactation present characters of marked general physical exhaustion, and mentally are more often of the depressed than of the maniacal form. Lactation insanity becomes chronic oftener than the insanity of the other periods. There is a tendency to low forms of inflammation, thrombosis, gangrene, and phthisis during the insanity of lactation. Both suicidal and infanticidal promptings are more common in lactational than puerperal cases,—that is, in cases where insanity commenced more than six weeks after confinement.

6. The early symptoms of threatening insanity are loss of sleep and headache, and these should be a forewarning of mental breakdown. The busy delirium of hallucinatory character, ending in acute restless, purposeless mania with religious and erotic delusions, is characteristic of this variety. The writer suggests a close analogy between the emotions of love and religion, and agrees with Simpson that the organ diseased gives a type to the insanity, and that in women suffering from affections of the generative organs

the delusions are more likely to be connected with se-
ters.

7. *Etiology*.—Heredity is more marked and in the
ternal line in puerperal and lactational insanity, and
paternal and maternal in the insanity of pregnancy. A
record of hysteria is frequent in puerperal insanity. The
of marriage of hysterical persons is considered.

8. The *pathology* is that of heredity and stress. Is
due to a toxin?

9. As regards *prognosis*, cases of insanity during e-
nancy improve towards the end of pregnancy, whereas
late pregnancy become worse at the puerperium. Puer-
sanity is markedly recoverable. Improvement is rapid
often complete in three months, but generally takes four
months.

10. *Treatment*.—All cases presenting headache and
ness must have absolute quiet and rest, and sleep must be
Home treatment in all cases if possible. Guard against
and sudden impulses of suicide and infanticide. The p
the husband aggravates the symptoms. There is much
for a liberal and stimulating dietary. Change is necessar
peral insanity when cases tend to become stuporose.
tion is a sign of mental improvement. Purgatives are
well borne.

CRITICISM.

The following special questions were put forward for
criticism:

1. Is there such a disease as puerperal insanity—a men-
tion which is either caused by the puerperium or an a-
ment of this physiological crisis?

2. If there is, are the mental conditions due to toxem-
ticemia, or both? Or is the delirious mania which occurs
nection with this period due to extraordinarily emotional
ances? How far does the moral factor enter into the
and how far does pregnancy in the unmarried state in-
causation of insanity?

3. What is the relation between mania and melancholia
instance, is there any relation between the mania of the
period and the melancholia of lactation? If the former
from, may the disease culminate in the latter? Are
forms of cell reduction, and again are they toxic or so-
What is the age of greatest incidence, and in what pro-
cases of insanity occur during gestation, the puerperal p
lactation in the poor and well-to-do? What is the in-
heredity?

4. What is the essential pathology of this disease?

5. What is the relation between albuminuria and p
also from albuminuria and the puerperal state?

6. In my cases, so far as the history could be obtained
relatives or those present, no prodromata of insanity bey

lessness and headache were as a rule noticed, and the onset of insanity was sudden: what is the nature of the onset in the practice of obstetric physicians?

7. As to prevention and treatment, does hysteria in youth manifest itself by insanity in later life at the puerperal or other physiological crisis, and should marriage be discountenanced in these? What views should be generally held as to the marriage of neurotic persons? What are the views as to home and asylum treatment, as to local and general treatment, and more important and especially as to the induction of premature labor?

SIR JOHN WILLIAMS dwelt upon the peculiar condition of the nervous system in pregnancy, parturition, and the puerperal state, and reviewed briefly the pathology of puerperal insanity. He strongly deprecated the resort to surgical measures in the treatment of this insanity.

DR. BLANDFORD said that beyond question, the earliest symptoms of approaching mental trouble was loss of sleep, and this should be most closely watched and every precaution taken that the patient shall not be disturbed by noises or talking in the room, by the child being brought to be nursed, or by the visits of friends.

With regard to Dr. Jones' question, is the mental disturbance due to toxemia or septicemia, or both? it must be remembered that toxemia and septicemia are different things. Septicemia, unfortunately, we know a good deal about, and the result is puerperal fever, not puerperal insanity.

About toxemia a good deal had been heard and some have gone so far as to say that all insanity was toxic, and depended upon toxins. We had a great deal more to learn about toxins, which were now much in fashion; *e.g.*, why do certain people generate toxins, while others do not? Thousands and thousands of women bore children and never became insane. Among native races child-bearing was hardly looked upon as an ailment. Why did certain women generate the peculiar toxin which caused insanity? Toxins did not explain the pathology of insanity. They did not agree with the on-coming, the symptoms, or the passing away of the disease.

DR. HERMAN thought the paper and the discussion on it would do great good, if it impressed upon the profession that the main duty of the general practitioner and the obstetric physician in regard to puerperal insanity, was to prevent it. Treatment was mainly in the hands of the alienist. To prevent puerperal insanity, the great things were to see that the patient got food and sleep. If sleep was absent, he thought that the best hypnotic was alcohol. There were objections to alcohol, of which in the present day no one was in danger of losing sight. Every hypnotic, if taken too much did harm, but the harm done by alcohol, if taken too freely, was far less, and far slower in coming, than that done by chloral, bromide, morphia, sulphonal, or any other hypnotic, if taken habitually for long periods.

With regard to the questions in paragraph 7, he would ask what was hysteria? The most common and most definite hysterical

phenomenon was the well-known hysterical seizure; but surely would not propose that the marriage of every woman who had suffered from hysterical seizures should be discouraged. With regard to the less definite and less common nervous symptoms, commonly spoken of as hysterical, he thought that we had of these nervous states, and our power of accurately casting the future of such patients, the effect of marriage on them and the kind of offspring they were likely to have, was far too imperfect to justify medical men in taking upon themselves the responsibility of discountenancing a proposed marriage. To forbid marriage was often to spoil the happiness of life. The utmost that a medical man should do was to allay those concerned whatever fears he might have as to the result of marriage, explaining also how much these fears were unfounded.

DR. MERCIER, after touching upon several of the points suggested for criticism by Dr. Jones, took exception to the statement that headache was a common prodromata of a puerperal mania. The only reliable indications were, he thought, sleeplessness, loss of appetite. He did not think that single women, and mothers, suffered much emotional stress, as a rule. Many women were already half-witted, and the insanity of the puerperal mania was only an exaggeration of their usual state. The rest was, for the most part, upon a low moral plane. When they incurred the responsibilities of maternity they counted the cost and were ready to sacrifice. He protested strongly against the suggestion that puerperal mania could be treated satisfactorily at home. Treatment was always best for reasons which he explained. Menstruation was often a mark of recovery, it was true, but the mental state cleared up on the appearance of the next menstruation. The combination was extremely favorable, but the establishment of regular menstruation without mental improvement, indicated a gloomy future.

DR. CHAMPNEYS fully endorsed all that had been said, sleeplessness as the striking symptom of threatening puerperal mania, about the necessity for procuring sleep and about the value of alcohol as a sedative in such cases.

He had always been greatly interested in the relation between single births and insanity, and it had always seemed to him that if mental distress were a factor in producing insanity, the frequency in such cases ought to vary directly as the moral standard. He would be glad to know if this had anywhere been verified. It is a well-known fact that the moral standard, with respect to such matters, varies greatly in different countries; if the contentions were true the proportion of cases of insanity would be highest in countries where the moral standard is lowest, and mothers ought to be lowest in immoral and highest in moral countries.

As regards toxemia and its relation to pregnancy, he thought that the explanation given in the paper would be sufficient. Effete products were doubtless prevalent after abortion; on the other hand, the sense of physical and mental

and relief ordinarily experienced after delivery were proverbial. He did not think that this would be the case if ordinary toxins were the usual cause of insanity after labor.

DR. LLOYD ANDRIEZEN stated that the division into insanity of pregnancy, of the puerperium, and of lactation was a conventional and not a nosological classification. He recognized in asylum patients a form of insanity peculiar to and common in the puerperal state.

The insanity of the later months of pregnancy was often of a depressive form and was fraught with danger of suicide, but other psychoses might also manifest themselves at this period. He concluded from a careful study of statistics that illegitimate pregnancy was twice as frequently followed by mental disorder as legitimate pregnancy. He regarded puerperal insanity as comprising three main types of mental disorder—viz., first, a collapse delirium following upon parturitions attended with marked exhaustion and hemorrhage; secondly, an acute confusional insanity with hallucinatory delirium (frequently misnamed "Mania"), and, thirdly, mania or melancholia proper, or alternating manio-melancholic insanity. This third category of cerebral affections was rare in the puerperium, while the second variety was, per contra, frequent. The patients who developed the characteristic acute confusional insanity with hallucinatory delirium above noted were generally psychopathic subjects, whereas normal women going through the stresses of the puerperium suffered a slight ephemeral cerebral disturbance. Fifty per cent of cases of puerperal insanity in public asylums (whether primi- or multi-paræ) gave histories and indications of a psychopathic heredity. He believed that septic infection from the bruised and wounded tissues of the parturient canal played an important rôle in the causation of puerperal delirium. Where the septic or toxemic factor was intense a corresponding disturbance of pulse, respiration, temperature and secretion was noted. Clinically and psychologically, it was possible, as a rule, to distinguish cases of collapse delirium from those of acute confusional puerperal insanity of combined psychopathic and septic origin and occurring in the first fortnight after childbirth.

The latter manifested symptoms of insomnia, loss of interest in surroundings and loss of natural affection for the child, indications of clouded consciousness and cerebral apathy. To talkativeness succeeded a stage of incoherent or rather confused speech and excitement from hallucinations of sight and hearing followed. These patients were liable to dangerous suicidal, destructive and infanticidal impulses; they were not cases of "mania," properly so-called. The insanity of lactation was typically an exhaustion-psychoses, and in a few this was complicated by toxemia from secondary pelvic and mammary trouble.

DR. MORR said that among the large number of cases recorded by Dr. Jones there was not a single case of gangrene; perhaps, therefore, he might be allowed to relate an instance of symmetrical gangrene of the feet, which he had seen in a woman certified as

suffering with puerperal insanity, who was admitted into the L. C. asylums.

This patient not long after admission developed signs of erythema of the feet, and for this reason his attention was called to the case. The history showed that the child had been born dead, and it was found that she was suffering from septicemia. Her mental condition improved when this was treated. The speaker asked Dr. Jones what he considered were the most important symptoms distinguishing puerperal insanity from the delirium of fever, occasioned by the same cause.

Some authorities describe a transitory puerperal psychosis of which cases accompanied by fever would be difficult to distinguish from cases of puerperal fever with delirium. Dr. Jones considered that the majority of cases of puerperal insanity were of septic origin, but due to inherited psychopathic or neurotic conditions, the determining factors being stress and a susceptibility to deficiency in the blood.

DR. PERCY SMITH said that with regard to the early symptoms he thought that next to sleeplessness, restlessness and confusion of thought were more important than headache.

He agreed with Dr. Mercier that there was no definite mental disorder, which could be looked upon as absolutely characteristic of puerperal insanity and pointed out that cases could be either of the delirious, confusional, maniacal, morose, stuporous or delusional types, and he did not think it was unerringly, to pick out the puerperal cases in the wards of an asylum without knowing the history.

Mania with religious or erotic delusions was often seen in women, the cause of whose insanity was not puerperal.

He had very little personal knowledge of illegitimacy and abortion, but called attention to Clouston's statement that 75 per cent of puerperal cases admitted to Morningside Asylum followed multiple births.

Another point in the etiology was that 26 per cent of cases admitted to Bethlehem Hospital had had a previous attack of insanity, either one before marriage or one after marriage. He was not puerperal in origin or a previous puerperal attack. He referred to Dr. Herman's remarks on hysteria and said that the analysts constantly found a history of previous "hysteria" in cases admitted to asylums, which when carefully inquired into, were found in many cases to have been a previous attack of definite mental disorder euphemistically called "hysteria." He was sure that such patients ought not to marry.

DR. ERNEST WHITE thought Dr. Jones' proportion of cases too low—probably one in 400 confinements was a fair mark, for there were many which did not come to the attention of the treatment, and of which no records were obtainable. He was like to draw attention to certain of the mental symptoms, such as the temperature charts in this disease. The obscene and erotic tendency and self-abuse were probably of peripheral origin, arising from abnormal uterine conditions, altered lochia, etc.

tions of hearing and sight were common—more rarely those of taste. He had not observed those of smell alluded to by Dr. Jones, nor did headache occur in his cases.

The delusions were those of the persecutory type and accounted for the early refusal of food, which the patient imagined was poisoned. There was a marked tendency to suicide by impulse and to infanticide. Next, as to the temperature chart, in nearly all his cases there was an elevation of temperature of from one to two degrees in the evening with a morning fall of a degree or less, lasting from ten days to a fortnight, then a sub-normal temperature for several weeks. In two or three cases there was long continued febrility and charts like those of enteric fever with evening exacerbations and morning remissions, lasting a month or more, but followed by sub-normal temperature for several months. These cases he thought of septic origin. They did badly and generally became chronic and died.

Next as to causation. The most frequent cause was hereditary nerve instability. He had no experience of illegitimacy as a cause and did not believe in it.

DR. WALTER GRIFFITH stated that with regard to the insanity of pregnancy, he agreed with the prevailing opinion that there was no specific form; pregnancy might be a complication to insanity or the reverse, but there was a group of cases quite distinct, in which the main feature was the apprehension of the patient either real or simulated, that unless the pregnancy was terminated, she would become insane; he looked upon all such cases with the gravest suspicion, not of insanity, but of rather the reverse, as an ingenious method of putting strong pressure on their medical adviser to produce abortion. He had seen no exception to this in the cases in which he had been consulted.

As to premonitory symptoms, he regarded the refusal of food as of equal importance as sleeplessness, and he was sure that in general practice the absolute necessity for forced feeding, even by the nasal tube, where necessary, was not properly recognized as the essential means for saving life.

DR. SEYMOUR TUKE, while fearing that the alienists had been given too large a share in the debate, was glad that some one had stood up for the women who had borne illegitimate children, for some were certainly cast in a higher mold and did feel the mental distress, which Dr. Jones had laid down as a possible factor in the etiology. Dr. Tuke pointed out three factors in favor of asylum versus home or lodging treatment—first, that it was hard upon the patient to be under control where she had hitherto been in command; second, the possibility in a well-ordered asylum of instantly changing the attendants if necessity arose through the patient taking a dislike to any of them, and, third, the fact that a home where restraint had to be applied of any kind was likely to have less pleasant associations and memories after recovery.

He mentioned how acutely those who devote themselves to their asylums felt the unjust and uncalled-for criticisms of some people who ought to know better.

He strongly agreed with previous speakers in the need for food feeding and urged the early resort to artificial feeding called for. While allowing the great use of alcohol, he said that the habit of forming a habit must not be lost sight of.

DR. CLAYE SHAW said that of the many points raised by Jones, one of the most important ones was that relating to the etiology of a mental disorder due to the puerperal state, and the author of this paper seemed to incline to the fact of the existence of a specific disease, he had yet voiced it in no definite tones, and a similar hesitation had been apparent in the remarks of other speakers during the evening. To him, however, no means an easy thing to be always sure about. It was his opinion that there are two classes of cases really existent, but both characterized by the delusions, incoherence and other mental symptoms supposed to be pathognomonic of insanity due to the puerperal state alone. Insanity characterized by prominent mental demonstration might occur in young women at the puerperal epoch, or in women of middle or advanced age, when there were no uterine or ovarian complications of any kind, and passed, just as delusions of a sexual character might occur in boys and men accompanied by acts of masturbation, and there was no occasion to attribute the symptoms to influence of the genital organs at the moment. When, however, the type of insanity was higher than is usually met with in acute insanity and the symptoms came on shortly after parturition, there was a strong argument in favor of a direct connection between the mental states, especially when there was a history of hereditary insanity, with the probability of the presence of a septic condition of the theory that impressions from the viscera and especially from the sexual organs are transmitted to the central nervous system to arouse ideas there, which form all kinds of associated ideas. This is quite sufficient to account for the fact that sexual symptoms of a similar character and intensity may occur as the result of a lesion, which is primarily central or of one due to external influence, whether caused by an antiointoxication or by simple infection.

DR. AMAND ROUTH urged the desirability of having a central place for the insane, either a receiving house, or a Nursing Home, where women could be received from such temporary insanities as those under discussion, and be received and treated. Such a plan would avoid the necessity of having been in an asylum and would make it much easier for the friends of the patient to agree to her removal.

THE PRESIDENT thought that obstetricians saw the necessity of a rule, at a much earlier stage than did the alienists, and for this reason and because of the shortness of time, he was not able to discuss the subject, but the subject had said but little about diagnosis.

As a fact, when the patient was admitted into an asylum, a diagnosis had been made. Whereas, in the earlier stages of the disease, it was not always easy to say that a case amounted to actual insanity. He considered, with Dr. Griffith, that the refusal of food was a graver symptom and pointed much more certainly to insanity than did sleeplessness. This and headache, too, occurred

quently in patients who never developed insanity. Whereas, refusal of food, and by that was meant not mere anorexia, was practically only associated with insanity.

In all fatal cases he emphasized the importance of making a thorough *post-mortem* examination, not merely of the brain, but of the other organs. For probably pure insanity was rarely fatal. He mentioned a case which presented the ordinary symptoms of puerperal insanity. She died and a *post-mortem* examination revealed suppuration extending from the parametrium behind the fascia up to the kidney.

DR. ROBERT JONES replied briefly.

REVIEWS.

DISEASES OF THE STOMACH. A Text-Book for Practitioners and Students. By MAX EINHORN, M.D., Professor in Clinical Medicine at the New York Post-Graduate Medical School and Hospital; Visiting Physician to the German Dispensary. Third Revised Edition. Pp. 534. New York: William Wood and Company, 1903.

The author is so well known through his earlier editions and his clinical contributions in the field of gastric diseases that no introduction is needed by the third edition. This contains a preliminary sketch of the anatomy and physiology of the stomach, which is followed by instruction in the method of history taking and in the technique of physical examination of the organ and chemical and microscopical study of its contents. Diet is treated in a general way, no fixed diet lists or hard and fast rules being given. A characteristic of the writer's dietetic directions is their liberality. The chapter on local treatment consists chiefly of descriptions of the devices of the author for this purpose. The bulk of the volume is devoted to organic gastric diseases such as ulcer and cancer, and the less generally understood functional affections. In spite of its general excellence the work could be improved by condensation and omission of statements of priority. It is also regrettable that the scope of the work is confined to diseases of the stomach to the complete exclusion of the closely related and interdependent intestinal tract.

THE MEDICAL EPITOME SERIES. MANTON'S OBSTETRICS. A Manual of Obstetrics for Students and Practitioners. By W. P. MANTON, M.D., Adjunct-Professor of Obstetrics and Professor of Clinical Gynecology, Detroit College of Medicine. Pp. 265, with 82 illustrations. Lea Brothers & Co., Publishers, Philadelphia and New York, 1903.

Difficult it is to write a good text-book and still more difficult to give the same information in condensed form. The hardest

task which can be assigned to a writer is to place the facts of a subject within the narrow limits which common sense allows. The insensate desire for uniformity of size, with its tendency to crowding such extensive branches as surgery and medicine into the same number of pages as histology, embryology, or physical diagnosis, not only tries the patience of the reader, but hampers him so as to seriously diminish the value—real and commercial—of the finished product. The difficulties Dr. Manton has met more successfully than most. In general his teaching cannot be disputed, though certain points are open to discussion. The method adopted in this edition of this series of grouping questions at the end of each chapter is a long step in the right direction. May the next edition see this useless waste of space entirely done away with. The name "Medical Epitome Series" in place of the old "Synopsis" would be justified by fulfilment.

REFERENCE HANDBOOK OF MEDICAL SCIENCE. Edited by H. BUCK, M.D. Completely Revised and Rewritten by the Authors, embracing Scientific and Practical Medicine and Allied Science. VOL. V. Second Edition. Williams and Wilkins Company, New York, 1902.

The fifth volume of the Reference Handbook of Medical Science contains some most important contributions. In the chapter on mental diseases Steward Paton shows how difficult it is to classify the forms of insanity on account of the indefiniteness of the relation between the pathological lesions and the symptoms. Clinical classifications and those based on the etiology are of little value. Henry S. Berkley discusses the general etiology of insanity. He states that the three great factors contributing to the increase of insanity are the struggle for a competence, alcohol and syphilis. The general pathology is taken up by Meyer, while the general symptomatology is reviewed by Bancroft. The latter defines insanity as a prolonged deviation from the individual's normal method of thinking, feeling, and action, due to functional or organic disturbances of some part of the encephalon. Following the general discussions are concise articles on the various forms of insanity, all of which are ably illustrated by cuts showing the facies and characteristics of the insane. Robert Abbe, in his article on abdominal surgery, describes the best methods of operating and the indications. He points out that in intestinal surgery three points should be borne in mind: First, that the only solution used should be a decinormal salt solution; second, that the greatest care should be taken in the technique should be followed; third, the understanding of the process by lymph exudate, a process peculiar to this field. The directions given by George W. Dobbin in his article on the treatment of the various forms of insanity are particularly clear, and if carried out more universally would prevent many of the complications during and after the operation. He condemns ante- and postpartum douches as conducive to

harm than good, except in rare cases. Vaginal examinations should be made only with the strictest antiseptic precautions and as infrequently as possible. To show the scope of this volume, may be mentioned articles on the liver, lungs, kidneys, drugs, health resorts and military hygiene. They are written in the same clear, terse style as those in the previous volumes.

PROGRESSIVE MEDICINE.—A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; assisted by H. R. M. LANDIS, M.D., Assistant Physician to the Out-Patient Medical Department of the Jefferson Medical College Hospital. Volume I. March, 1903. Surgery of the Head, Neck and Chest; Infectious Diseases, Including Rheumatism, Croupous Pneumonia, and Influenza; Diseases of Children; Pathology; Laryngology and Rhinology; Otology. Lea Brothers & Co., Philadelphia and New York, 1903.

The list of contents given above is sufficient to show that Volume I. is one of the most interesting of the four for the current year. The authors are the same as last year, with the exceptions that the infectious diseases are treated by James B. Herrick, of Rush Medical College, and laryngology by A. Logan Turner of Edinburgh. Floyd M. Crandall again furnishes the chapter on diseases of children. Hektoen's subject of pathology is of unusual importance on account of the recent studies in immunity. His abstracts are a continuation of those of last March.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY. Volume 27, pp. 445. Philadelphia: Wm. J. Dornan, 1902.

This volume contains the material brought before the Society at its twenty-seventh annual meeting, held in May, 1902, at Atlantic City, an abstract of which appeared in this journal for July and August of the same year.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1903.

A yearly Digest of Scientific Progress and Authoritative Opinions in all branches of Medicine and Surgery, drawn from journals, monographs, and text-books of the leading American and foreign authors and investigators. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of GEORGE M. GOULD, A.M., M.D. In two volumes—Volume I, including *General Medicine*, Octavo, 700 pages, fully illustrated; Volume II, *General Surgery*, Octavo, 670 pages, fully illustrated. Philadelphia, New York, London: W. B. SAUNDERS & Co., 1903.

The volume on General Surgery which is now before us is an excellently planned and executed work well above the average of

books of this kind. The résumé of general surgery is by J. M. DaCosta; of obstetrics, by Barton Cook Hirst; of ophthalmology, by Montgomery Baldy; of orthopedic surgery, by Virgil Gibney; of diseases of the eye, by Braden Kyle; and of anatomy, by C. A. All these names are so well known that comment is unnecessary.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Eclampsia.—A. Ascoli¹ has conducted a series of interesting experiments with a view to throwing new light upon the etiology of eclampsia. He employed two sera, one made by immunizing rabbits with the placenta of guinea-pigs—a syncytiolysin, the other an isosyncytiolysin made by treating the placenta from their own species. This heterosyncytiolysin was injected subcutaneously into guinea-pigs, without inducing pregnancy or seriously injuring the animals and causing only a slight albuminuria. The normal pregnancy ended at the birth of healthy young. In only one case did a low injection into the carotid. Immediately after subcutaneous injection of a small dose deep coma occurred, interrupted by clonic and tonic convulsions, limited to the back, neck, and limbs, etc., or generalized. The attacks became less frequent and death followed without delivery having occurred. In the same amount of normal rabbit serum gave no reaction, showing that the cerebral symptoms were not due to pressure. When the serum was heated to 60° C. the symptoms after injection were slight and recovery took place in a few days, although three times the fatal dose before treating was employed. Rabbits could withstand ten times the fatal dose for guinea-pigs under the dura, without unfavorable effects, showing that the action of the syncytiolysin described. Similar, but slighter, followed the injection of the isosyncytiolytic serum. The fact that the syncytiotoxine, resulting from the absorption of placental tissue into the circulation can cause symptoms resembling those of eclampsia suggests that cytotoxic and other factors of character may be etiological factors of eclampsia. In the case of a certain immunity would have been acquired, thus accounting for the frequency of the disease in primipara.

Polyhydramnios.—Edward P. Davis² states that polyhydramnios is present when more than two pints of amniotic fluid are present at full term. In this condition the placenta is large, dropsical and infiltrated, Jungbluth's vessels are dilated, amnion and chorion thickened. Any fetal condition which causes venous engorgement tends to produce polyhydramnios.

The treatment of this condition by drugs is of no value. When the polyhydramnios is only slight and the patient's health is good pregnancy should not be interrupted, but when the distention increases rapidly and the mother's health is impaired thereby, pregnancy should be terminated.

The membranes should be ruptured and the fluid allowed to escape gradually until the presenting part is firmly against the cervix. Firm pressure being made above the abdomen to prevent the child from assuming an unfavorable position. Labor should not be hurried in the interest of the child because the fetus is often deformed.

Polyhydramnios is dangerous to the mother from over distention, relaxation, hemorrhage and increased danger of sepsis. The uterus must be completely emptied and made to contract.

Chorea Gravidarum.—D. Berry Hart³ cites two cases of chorea gravidarum. In one case the symptoms of chorea were very marked and failed to react to the use of drugs, the patient becoming worse, developing delusions and becoming so noisy that he determined to produce abortion. After this procedure the patient gradually got well. In the second case the symptoms were much less severe and were relieved by the combined use of sodium bromide and acetanilide, 15 gr. of each four times a day.

Mitral Stenosis Complicated by Pregnancy.—G. A. Wilkes³ attended two cases of mitral stenosis complicated by pregnancy, both of which died shortly after labor. These cases emphasize the liability to fatal loss of compensation in mitral stenosis when associated with pregnancy. Women with mitral stenosis, if they seek an opinion, should be advised not to marry. For although such patients may survive the ordeal of parturition, a grave risk is incurred, and the danger becomes greater with succeeding pregnancies. In cases of patients who present symptoms of serious circulatory disturbances in the early months of pregnancy, or in cases of those who have marked cardiac trouble during previous pregnancies, the induction of abortion should be considered.

Diagnosis of Abortion.—Opitz has recently published two papers upon certain changes in the uterine glands seen in curetted fragments. These he considers so pathognomonic of early pregnancy that he holds their presence to be proof of a recent abortion. Ludwig Seitz⁴ has studied the clinical histories and microscopical appearance of curetted uterine mucosa from two cases in which he was able to exclude the possibility of pregnancy. The structure of the uterine mucous membrane was identical with that described by Opitz as characteristic of the gravid uterus. The writer concludes that rare cases of hypertrophic glandular endometritis present these lesions.

Primiparæ Under Sixteen Years of Age.—Andor Palotai⁵ bases his conclusions upon twenty-five cases. He finds that in primiparæ under sixteen, pregnancy is normal, abortions rare, labor brief, operative interference seldom needed, puerperium normal, genital injury during labor infrequent, and the prognosis for the child excellent.

Labor After Uterine Rupture.—W. Stroganoff⁴ d case of rupture of the uterus in the anterior wall of the ment. This was closed by suture. Within a year the w again seen at nearly the end of pregnancy. Labor w with an elastic bougie. After rupturing the membra was brought down and a breech extraction done. N occurred to the uterus in spite of the presence of the s ing from the uterine rupture.

Spurious Labor.—J. A. W. Periera⁶ discusses a ca rious pregnancy which lasted for nine months. Whe called to deliver the patient he found the patient app labor, but upon examination found the uterus the size o mal unimpregnated uterus.

Rupture of Uterus.—Randolph Winslow⁸ cites a rupture of the uterus successfully treated by laparot three hours after the rupture occurred. The rent was three layers of sutures. The rent occurred while the op extracting the fetus which lay in the transverse positio

Repair of the Soft Parts Following Labor.—C Congdon¹⁹ believes in the immediate repair of lacer labor. He places the patient in the lithotomy position, retractors, so as to expose the cervix, grasps it with a and brings it to the vulva where the sutures may duced. The uterus is then replaced and any lacerati vagina sutured. If the parts are brought into perfect primary union will almost invariably be secured.

Dr. Baunan does not think that a woman after labor undergo any additional operation in the majority of cas the physician, if he has had charge of the case, is not i tion to do any repairs.

R. M. Moore thinks that immediate repair is not wi repair at the end of forty-eight hours gives the best resu Miller believes in the immediate repair of the perineum, the uterine structures.

Beahan believes that the parts should be repaired at two or three weeks when the patient is in good condi tion is well advanced.

Repeated Cesarean Section.—After a careful rev literature on this subject, A. I. Wallace²² comes to the conclusions: (1) The mortality of the repeated operat per cent, four deaths out of sixty-two cases, or, inc death after the repeated "Fundalschnitt" 7.93 per cent. fertility of women who recover is not impaired. (3) fourths of the patients more or less extensive adhesions at subsequent Cesarean sections. Complete utero-par sions render such repetitions exceedingly simple and e other forms of adhesions introduce difficulty and dang operation. (4) All Cesarean sections should be perform view to subsequent pregnancy. (5) This can be do adoption of means to ensure complete utero-parietal ad

Septic Mastitis.—Eleven days after delivery a

Max Bensinger⁵, whose pelvic organs were in normal condition and in whom no other source of infection could be found, developed mastitis. The child was removed from the breast, but showed three days later a phlegmonous inflammation behind the ear and died in two days, covered with multiple small cutaneous abscesses. In spite of treatment pyemia occurred in the mother and death on the seventeenth day. Streptococci were found in pus from the right knee joint.

GYNECOLOGY AND ABDOMINAL SURGERY.

• **Abdominal Drainage.**—R. Olshausen⁹ argues against the use of drainage in almost all gynecological operations, recommending it only in cases with a persistent purulent focus. Under other circumstances he regards it as a danger rather than a benefit. To protect against sepsis without using drainage he advises asepsis, use of gauze pads around purulent foci before separation of adhesions, closure of any point of rupture by forceps, complete hemostasis after removal of tumors, and mopping up of fluid, with as great rapidity of operation as is consistent with safety. The abdominal cavity should not be swabbed out as this would cause shock and carry infectious material farther. The paper includes statistics of a number of cases of laparotomy for tumors containing pus or other foul fluid, of partial removal of malignant tumors or of abscesses with a portion of the infiltrated wall remaining, of operations with penetrating wounds of bladder or intestine, and of operations in which the abdominal cavity was soiled by cystic fluid, old blood, etc. In these no drainage was employed and the outcome was favorable.

Methods of Closing the Abdominal Incision.—W. D. Haggard¹⁰ finds that the most reliable statistics show that hernia occurs in from 6 per cent to 29 per cent of abdominal sections. Suppurating abdominal wounds result in from 31 per cent to 68 per cent or hernia. The frequency of hernia is increased with the thickness of the parietal wall and the length of the incision; drainage also predisposes to this condition. The site of the incision does not materially add to the occurrence. Abdominal supporters have absolutely nothing to do with the prophylaxis of this condition. Neither have subsequent pregnancies. In thin subjects the through-and-through suture is satisfactory and is recommended when rapid closure is imperative. The method of closure in three layers by continuous silk-worm gut in peritoneum, facia and subcutaneously seems to be freer from objections than any other. The patient should be confined to bed for from 2½ to 3 weeks. After the wound is completely healed no other influence acts deleteriously upon the permanence and resistance of the cicatrix.

Diet After Abdominal Operations.—Wilmer Krusen¹¹ in treating patients after celiotomy allows no water for the first twelve hours although the lips may be moistened with cold water. At the end of this time hot water in teaspoonful doses may be

given. The administration of ice should be avoided to increase the thirst. The best way to prevent the thirst after operation is to give a rectal injection of one quart of water before or immediately after the patient leaves the table. At the end of forty-eight hours food should be given by mouth in small amounts often repeated. For this purpose beef juice, vegetable liquid peptonoids may be used. Milk should not be used in abdominal cases as it is not digested by the stomach and often causes flatulence. Milk is of value later in convalescence when feeding by mouth is not feasible rectal feeding should be resorted to. In feeding by rectum three principles should be borne in mind: (1) Cleanse the rectum of all mucus and feces. (2) The irritability of the rectum should be allayed as far as possible. (3) The quantity and quality of food thus administered should be regulated as to avoid exciting peristalsis, and yet allow of the absorption of one injection before another is given. From the fourth to the seventh day soft solids may be given and at the end of the first week ordinary diet may be resumed.

Vaginal Celiotomy, Its Scope.—Of the two vaginal incisions J. Riddle Goffe¹² finds the anterior one of the greater value because it is free from danger and devoid of any untoward or annoying consequences. Second, it affords as an exploration a more accurate, definite and reliable information concerning the entire contents of the pelvis. The simplest application of vaginal celiotomy is for the drainage of pelvic abscesses, in these conditions the posterior incisions are most often used. In other conditions the incision should be sufficiently free to allow of investigation and insure free drainage. The author believes that in any cancer of the uterus that cannot give a fair prospect of cure a vaginal hysterectomy had better be left alone. In dealing with retropositions of the uterus the writer finds that the vaginal approach gives the greatest satisfaction. In sterility one is justified in dilating the cervix and curetting the uterus, to open up the pelvis through the anterior vaginal wall and deal with the appendages according to the conditions found. The major portion of fibroids and small tumors may also be treated by this method. The latest application of anterior vaginal incision is in the treatment of cystocele.

Roentgen Treatment for Malignant Disease.—Wells¹³ strongly advocates the combined use of the hot water bath and the Roentgen-rays in the treatment of uterine carcinoma. He has found that an hour's exposure to the Finsen light followed by eight to five minutes' exposure to the X-ray is a good proportion. This proportion has given good results and, as yet, has produced any undesirable symptoms or done any injury to the tissues by the X-ray, caution must be used, as we cannot limit the treatment. Especially is this true where the uterus has been enlarged. He hopes that in time this line of treatment may supersede operative procedures, as it will bring treatment to bear upon the masses of tissue that cannot be enucleated by the knife.

Leonard¹⁴ believes that when the length of exposure

growth shall have been determined, the Roentgen rays will prove of great value. Until then it must follow operative intervention as a supplement to that method. The operative removal of the macroscopical malignant tumor, and the subsequent Roentgen treatment dealing with the microscopical residual disease is both curative and prophylactic.

Alexander's Operation.—Le Roy Brown¹⁵ bases his preference for this operation in suitable cases on the following facts: First, the relief it affords patients from symptoms on account of which they seek counsel. Second, the danger is nil, and the operation of far less gravity than other surgical means in use for the relief of the same symptoms. Third, the anatomical result obtained is all that can be desired, and is effected without the establishment of new pathological adhesions, the intentional formation of which form the basis of all vaginal fixations or ventral suspensions. Fourth, that the liability to inguinal hernia, provided the operation is properly done, is greatly exaggerated.

Value of Electro-Thermic Angiotribe.—John W. Keefe¹⁶ finds this angiotribe of value on account of the rapidity with which an operation can be performed. The greater asepsis and cleanliness during the operation. Hemostasis without the aid of a ligature. The greater infrequency of secondary hemorrhage and of pain subsequent to operation.

Implantation Metastasis and Late Recurrence After Operation for Carcinoma.—R. Olshausen⁹ gives, in proof of the possibility of implantation during operation of tumor cells, brief reports of five cases. In four of these the growths were carcinomata; in the other, a benign ovarian cyst. In all the second tumor was situated in the abdominal wall just beneath the skin, the cells having been implanted probably in the subcutaneous tissue. They were on one side only of the scar of the former operation. As malignant tumors of the abdominal wall are extremely rare, Olshausen holds that their occurrence in four cases after operation for intra-abdominal carcinoma is strong proof that cells of this character were inoculated into the original abdominal wound. He reports also three cases of recurrence of malignant neoplasms after four and a half, seven and twelve years, respectively. That such cases are really recurrences and not new primary tumors he thinks is shown by the fact that the great majority of the later growths are situated in the neighborhood of the scar of operation.

Involvement of Lymph Nodes in Carcinoma of the Uterus.—In order to aid in settling the disputed point as to the advisability of removing the vaginal lymph nodes when extirpating the carcinomatous uterus, Franz Oehlecker⁹ examined in serial sections masses of fat and connective tissue containing these nodes in seven cases which died after the operation. In only two of these cases were metastases found in the nodes, and these nodes showed no macroscopic evidence of their involvement.

Fibroid Tumors of the Uterus.—J. Riddle Goffe¹⁷ believes the proper treatment for fibroid tumors of the uterus, speaking in a broad way, is removal by operation, and that, too, immediately, whether the tumor be large or whether it be small, whether it be

in a married woman or in a single woman, excepting from this rule only women of very advanced years and those in which the tumor is complicated by pregnancy. The majority of cases of fibroid tumor of the uterus complicated by pregnancy will go to full time and be delivered normally. In the hands of an expert Cesarean section at full term is safer for the mother and child than myomectomy during gestation in the rare instances in which it is required. E. Percy Paton³ reports the case of a transplanted uterine fibroid giving rise to intestinal obstruction. The patient was operated upon but the parts found in such bad condition that the obstruction could not be relieved. The patient died a few hours after the operation. At the necropsy the growth was found attached to the mesentery and small intestine just above the ileocecal valve and to the omentum from which it received most of its blood supply. On the posterior wall of the uterus was a short stalk from which there is little doubt that the tumor had become disconnected. Microscopically the growth showed the ordinary structure of a uterine fibroid.

Ovariectomy.—G. G. Bantock⁴ reports a case of ovariectomy seven years after a vaginal hysterectomy. He reports this case as he performed the first operation and left the ovaries in place on account of the supposed internal secretion of the ovary. As the ovary is very liable to become diseased is not this liability a very strong argument against the leaving of the ovary after hysterectomy?

Ovarian Fibroma.—F. J. McCann⁵ removed an ovarian fibroid from a patient seventy-three years old on account of its steady increase in size and the difficulty it caused in walking and lying. This case is of interest to clinicians as it shows that a solid ovarian growth may increase in size and probably even originate, as this growth probably did, after the menopause and yet be of simple character.

Polypus of the Uterus.—R. Favell¹⁸ reports the spontaneous expulsion of a polypus weighing three pounds eleven ounces from the vagina. The growth was attached to the fundus of the uterus by a long pedicle.

Ovariectomy.—W. Watter¹⁸ cites a case of ovariectomy done on a patient four months pregnant. Patient made a good recovery. Dr. Watter is inclined to think that the closer to the uterine wall the pedicle is ligated the greater the chances of miscarriage.

Primary Tuberculosis of the Ovary.—J. E. Geurmell¹⁸ discusses a case of primary tuberculosis of the ovaries. Both ovaries were removed and found upon microscopical examination to be tubercular. There were no other signs of tuberculosis in any of the other organs, therefore, the writer concluded that he had to deal with a primary lesion.

Tubal Pregnancy.—In twenty-three cases examined with a view to determining the cause of implantation of the ovum in the Fallopian tube, Erich Opitz⁴ found signs of preceding salpingitis. The resulting adhesions between folds of tubal mucosa and protrusions of tubal epithelium may be called the normal causes

of tubal implantation. Other forms of obstruction may be considered accidental and of slight significance.

Chorio-Epithelioma.—L. Krewer⁴ describes two cases whose clinical histories are very similar. The first patient was thirty-three years of age and had had one labor and two abortions the last three years before her illness. The last menstruation was of five weeks' duration and ended one month before the onset of her present attack. This commenced with left hemiplegia followed in a few days by cough with expectoration of blood and signs of areas of consolidation of the lungs. The woman became progressively anemic and died one month after the appearance of paralytic symptoms. Hemorrhagic areas were found in all the viscera, and in the enlarged uterus a tumor the size of an apple. Three and a half months before admission, the second patient had expelled part of a hydatidiform mole and the remainder had been removed by the finger. She was twenty-nine years of age. When first seen she was comatose with right hemiplegia. After becoming conscious she was aphasic, then had a cough with occasionally blood-streaked sputum, but no signs of actual consolidation. Optic neuritis was followed by atrophy of the optic nerves and total blindness. There was progressive anemia and emaciation with dyspnea and signs of patches of pulmonary consolidation. Death occurred two months after admission. Autopsy showed grayish-red metastatic nodules in the brain, lungs and other organs. In the mucosa of the uterus was a scar which, with the metastatic deposits of both cases and the uterine tumor of the first, showed two types of cells. These resembled in form, staining properties, and relative position, the two layers of cells of the chorion. For this reason the writer considers the chorion as their source and designates the tumor chorio-epithelioma malignum.

Ovarian Embryomata.—William Frederick Zilke²⁰ draws the following conclusions from three ovarian embryomata or so-called ovarian dermoid cysts. First, structures derived from the three embryonal primordial layers were found in each of them, with the exception of one where the search for the endoderm was prevented by degeneration. Second, the extent of the development along different lines varied greatly in each case, though all turned to pathological growth early when compared with the normal embryo. Third, the structure of the cyst wall was similar to other cysts derived from the Graafian follicles. Fifth, the size of the cyst seemed to vary in direct proportion to the amount of waste matter excreted by the embryoma. Sixth, the ovaries had an abnormally large number of follicles approaching maturity. Seventh, the condition of the genitalia in these cases made it extremely doubtful that these tumors were of congenital formation.

Mixed Tumor of the Uterus.—C. Gebhard⁴ describes a most unusual polypoid growth springing from the fundus of the uterus near a tubal orifice. The patient was fifty-six years of age, a multipara, whose menopause occurred sixteen years before. The tumor was composed of connective tissue, smooth muscle fibers,

fat, cartilage, and glandular tissue showing endotheliomatous and sarcomatous degeneration.

Complete Atrophy of Uterine Mucosa.—The uterine mucosa was found completely atrophic in a case of large uterine fibroid treated by total abdominal hysterectomy. Richard Volk²¹ ascribes this absence of mucosa to pressure by the tumor following possible injury resulting from scarlet fever in childhood.

Endometritis.—H. J. Boldt¹⁵ in reviewing this subject takes up the more chronic forms first. The clinical diagnosis of these forms is to be based more on the history which may be elicited from the patient than on the objective symptoms, which may be present. Chief among the subjective symptoms, irregularities of menstruation should be mentioned, the periods becoming nearer together. Aside from this various reflex symptoms manifest themselves which may probably be ascribed to the concomitant anemia. The patients which have an increase in the size of the organ with hyperplasia of the muscularis, as a rule, complain of a dragging sensation in the lower abdomen.

Inspection shows the vaginal portion of the cervix to be enlarged, of a reddish-purplish hue and to bleed freely when manipulated.

Treatment.—The local treatment giving the promptest relief is the judicious use of the curette. Before operation it is imperative that a bimanual examination be made to determine whether or not tubal swelling is present. After curetting Boldt makes an application of pure carbolic acid to the interior of the uterus. When curetting does not give the desired results applications of iodine or carbolic acid twice a week suffice. In more severe cases an application of chloride of zinc should be made. This is done by using a Braun's intrauterine syringe with a specially thin tip and having but one opening. The vagina should be packed in its upper part with bicarbonate of sodium to prevent any irritation should any chloride of zinc exude from the uterus. Some of the more severe cases call for hysterectomy. Among the acute forms of endometritis the septic rarity is most frequent. The treatment of such cases should be general. Absolute rest in bed and the application of an ice coil or bag on the lower abdomen. If retained membranes or placenta are in the uterus, they should be removed manually if possible; then an intrauterine irrigation with a mild antiseptic solution at low pressure should be made. Light massage of the uterus (severe infections excepted) act beneficially by causing uterine contractions and thus making the consistence of the uterus firmer. Curetting is strongly condemned by the writer. Hysterectomy is as yet a doubtful procedure. The less local meddling done in cases of bacteriemia the better are the chances of recovery.

Treatment of Retroversion of the Uterus by Shortening the Utero-Sacral Ligaments.—J. Wesley Bovée² performs this operation by the vaginal route when the uterus is normal in size, is retroverted and the utero-sacral ligaments are moderately slack-

ened, and especially if the vaginal roof under them is slack at the same time. This route is not advisable if there are adhesions, a very short and lowly attached anterior vaginal wall or new growths present. The abdominal route should be used when any condition exists which requires the opening of the abdomen, or when injury to the upper part of the fascia of the ligament requires repair, or when the vagina is small. Intraperitoneal shortening of the round ligaments should also be done when the abdomen is opened. This operation is practically devoid of danger and is frequently indicated, and it is supporting Nature's supports to the uterus.

So-called Urethral Caruncles.—From a study of the growths in fifty-eight cases of so-called urethral caruncles M. Lange⁴ concludes that they are not true angiomas, but neoplasms of the mucous membrane of the type of granulomata, extremely vascular papillary polypi, or tetangiectatic polypi of the mucosa. They are differentiated from other neoplasms of the same region by the constant presence of glands which are often changed by cystic degeneration, intraglandular hemorrhage and round-cell infiltration; from prolapse of the urethra by the macroscopic appearance and by the absence of cylindrical or transitional epithelium upon their surface. They are not especially frequent at any particular period of life, but after the fiftieth year they are usually papillary polypi; before forty, more granulomata and tetangiectatic polypi are found. Gonorrhea may be the cause of granulomata, and gaping of the urethral orifice from senile atrophy may lead to papillary polypi. The cause is usually not ascertainable. The number of labors appears to have no influence in their production. The incidental symptoms are the result of a complicating chronic urethritis or prolapse of the urethral mucosa or high insertion of the caruncle.

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DISEASES OF CHILDREN.

Acute Osteomyelitis.—Charles Greene Cumston (*Pediatrics*, Jan., 1903) reports a case in a boy of nine years relieved by operation. He says that trephining the bone in cases of moderately severe acute osteomyelitis is the proper treatment to select,

but when the disease takes on an excessively malignant aspect, resection of the diseased bone or amputation of the limb will have to be resorted to. Immediate resection of the diseased bone must be resorted to in the acute cases where there is complete detachment of the periosteum from the entire bone, in acute osteomyelitis of the bones of the skull, in cases of hyperostosis accompanied by suppuration and necrosis arising from a chronic osteomyelitis, and in those cases of neuralgic osteitis, when after trephining the bone the pain still remains acute. Early resection should be performed in all cases of osteomyelitis where trephining the bone and curettement of the abscess have proved insufficient. Late resection is indicated where there are invaginated sequestra in the newly formed layers of bone, and which jeopardize the patient's life on account of the prolonged suppuration which has been kept up by their presence. Amputation or disarticulation should only be resorted to exceptionally, in those cases where there is a complete pathologic change in the bone accompanied by a destruction of the periosteum, and a more or less complete necrobiotic change in the neighboring soft parts. In distinctly purulent arthritis accompanying osteomyelitis, with infiltration of the bony tissues entering into the formation of the joint, resection is indicated. Generally speaking the prognosis of resection in these cases is good. The age of the patient, the bone involved and the extent of the resection, the condition of the periosteum and the condition of the epiphysis must all be taken into consideration. Since subperiosteal resections are based on the physiological properties of the periosteum, a special technic is essential in order to obtain the acquired end, which simply means that the periosteal layer must be preserved in resections of the diaphysis, while the periosteal capsular canal must not be encroached upon in resection of the joint. Resection is especially indicated in childhood and adolescence, because during this time of life the osteogenic properties of the periosteum are marked, but nevertheless, in certain cases it has been practiced successfully in the adult.

Antipyresis in Children.—E. W. Saunders (*Pediatrics*, Jan., 1903) mentions a number of valuable antipyretics, and among them the external application of guaiacol. DaCosta in 1884 first proposed this remedy for the reduction of temperature in typhoid fever. He recommended that not more than thirty drops be painted on the abdomen. In a very short time the temperature drops, and profuse sweating ensues. By other clinicians its use has been extended to the treatment of other diseases, particularly tuberculosis and pneumonia. The lamented Moncarvo proved that the external application of guaiacol can be used as a diagnostic aid to differentiate tuberculosis from malaria, since there is prompt reduction of temperature in the former disease, while in the latter the fever is unaffected. Just how guaiacol acts in reducing fever is still unsettled. The method of external application is exceedingly valuable as an antipyretic in infants and children. When the stomach is very irritable, and hydrotherapy inapplicable for any reason, the external application of the drug

ts well. In pneumonia, particularly, many infants do not bear cold baths well, and here this method is indicated. In typhoid fever, and especially in tuberculosis, there should be no hesitation in applying guaiacol if the temperature and other symptoms demand its use. With care, there is little danger of depression. The susceptibility of infants to this remedy varies greatly; in some, the drop applied externally will produce the desired result; in others, several drops must be used.

Arthritis Deformans in Children.—I. A. Apt (*Wisconsin Med. Jour.*, Jan., 1903) says that this disease seems to occur in every climate, but more particularly in those regions where moisture and extreme cold are prevalent. Most of the children who fall ill of this disease belong to the poorest classes and live under the most unfavorable hygienic conditions. Still describes two varieties occurring in children, the first consisting of a chronic, progressive enlargement of the joints, associated with enlargements of the lymphatic glands and spleen. The causes of this condition are unknown. The disease usually begins before the second dentition, and it has been reported more frequently in boys than in girls. Its progress is slow and in time tends to remain stationary, leaving the individual in a helpless condition, owing to the severity of the joint involvement. At times exophthalmus has been noted in connection with these cases, with a rapid pulse. The second form of arthritis deformans as it occurs in adults is not frequent in children. The joint affection is multiple, and is not confined to the smaller joints. Most of the cases have been said to occur after exposure to wet and cold. This form is distinguished from the first variety by the absence of enlargements of the glands and spleen, by the presence of bony thickening and lipping about the joints, and in some cases by the presence of bony grating. Treatment should consist of removal to sanitary surroundings, or to a warmer climate with administration of iodides. The author reports at length a case of the second variety of the disease.

Cerebro-spinal Meningitis, Fibrino-Purulent Due to the Bacterium of Pfeiffer.—Mya (*Monatsschrift f. Kinderbk.*, Vol. 1, No. 3) details three cases in infants under one year old. Two were fatal, and at the autopsy a fibrino-purulent meningitis was found, together with encephalitis, pleurisy and lobular pneumonia. The third case recovered. In the cerebro-spinal fluid withdrawn during life, and also in the pleural pus in one case and the pus discharged from the ear in the last case, influenza bacilli were found in large numbers.

The cases occurred during an epidemic of influenza. The lesions of unusual severity, as evidenced by the autopsy findings. The meningeal symptoms were present first in one case, and were followed by otitis and pneumonia. In the other two, pleurisy and pneumonia developed first, and purulent arthritis of the shoulder was present before the meningeal symptoms appeared in the child. Lumbar puncture was used as a therapeutic measure,

and in the recovered case as much as fifty cubic centimetres was removed at one time.

Congenital Atresia and Hypoplasia of the Ileum.—Fuchsig (*Deut. Zeits f. Chirurgie*, Vol. 66, Nos. 3 and 4) reports the case of an infant free from syphilitic taint, who had the symptoms of stenosis of the intestine, and died suddenly when four days old. At the autopsy the stomach, duodenum, jejunum and upper ileum were found to be normal. About sixty centimetres above the ileo-cocol valve the ileum was dilated and hypertrophied for a distance of forty centimetres, and there ended in a very much contracted portion, which proved to be completely stenosed. The colon was normal. A pin-head-sized perforation was found in the upper portion of the dilated ileum. The mesentery was normal except at the stenosed part of the intestine, where it showed a small defect into which the stenosed ileum fitted exactly. The explanation of the case seems to be that a retroperitoneal hernia developed during fetal life, and that the interference with the circulation of the prolapsed gut, due to pressure of the edges of the mesenteric opening, caused the intestinal stenosis. It was impossible to operate upon the child because of its very bad condition. No similar case has been reported in medical literature.

Congenital Cardiac Malformations, the Family Occurrence of.—De La Camp (*Berl. Klin. Wochens.*, Vol. 40, No. 3) had occasion to observe six cases in one family. The father was alcoholic, but neither parents nor grandparents had ever suffered from heart disease. Two girls, aged respectively fifteen and seven years, presented the worst symptoms, while the two youngest brothers, five and eleven years old, the fewest. The other two boys were fourteen and twelve. The elder had a marked hypertrophy of the right side of the heart. In both girls a systolic thrill, felt at the left of the sternum, was the most prominent symptom. In addition, there was an accentuated second pulmonary sound and a systolic murmur transmitted over both the aorta and the pulmonary artery. Cyanosis was absent except during occasional attacks of vertigo. Roentgen ray pictures confirmed the diagnosis of patent ductus arteriosus in all the children. Whether other congenital lesions were present as well cannot be positively determined during life. The pulse presented no abnormality. There was no history of syphilis in the family.

Erythema Nodosum, a Rare Case of.—Fuhrmann (*Jahrb. f. Kindebk.*, Vol. 57, No. 1) observed a baby which presented blue spots on the extensor surfaces of the legs at birth. The child was born at term and was well nourished. Groups of reddish blue, nodular areas appeared upon the legs, thighs and arms. One spot came out on the face. The mucous membranes were normal, as were all the viscera. After three weeks the nodules all disappeared, without disfiguration, leaving a slight yellowish-brown pigmentation for some time over those spots which had been most deeply colored. The youngest case of the kind reported in the literature is eighteen months old. The prognosis is good; in the treatment injunctions of any kind are to be avoided. The disease

probably partakes of the nature of a vascular neurosis, possibly of toxic origin. The association of tuberculosis with erythema nodosum should be borne in mind.

Fragilitas Ossium in Children.—David McM. Officer (*Inter-Colonial Med. Jour. of Australasia*, Oct. 20, 1902) reports two cases in one family. The first child, now twelve years old, was born with both thighs broken, and has since had over forty fractures of various bones. The second, seven years old, was born with one arm broken, and has since had about twenty fractures. The bones were broken usually by very slight violence. Occasionally a fracture has been detected in the morning, which was not present when the child was put in its cot. The fractures have united fairly well in both children, the reason probably being that the bone is easily broken, and being very brittle the fracture is almost necessarily transverse. A family tendency is shown, as two children are affected, although five others are healthy, but no heredity can be traced. As to a cause for the disease, fetal rickets has been held responsible; but the cases of osteopsathyrosis are so rare that one is disinclined to believe that there is any causal connection between the two diseases. In rickets the bone tends to bend rather than to break. The skull bones in some recorded cases have been very soft, others being typical examples of "crepitant cranium." The two cases reported seem to be improving as time goes on, as most of these fractures occurred in early life, and the tendency has gradually lessened of late years. In view of the possibility of the disease being a metabolic or nutritive disorder of the bones, and on account of the valuable effect of thyroid feeding in cases of ununited fracture, the author is giving thyroid substance in these cases.

Infantile Cardiopathy, the Diagnostic Features of Three Rare Forms of.—Hochsinger (*Jahrb. f. Kinderbk.*, Vol. 57, No. 1) describes the cases. The first was a boy of nine years with an acquired cor bovinum after articular rheumatism and tuberculous pleurisy. Both sides of the heart were enormously hypertrophied. The pericardial sac was obliterated and adherent to the chest wall, as evidenced by the latter's recession with the cardiac systole. Both the mitral and the aortic valves were insufficient, and the heart was held in its abnormal position to the left by chronic adhesions of tuberculous origin.

The second case was a congenital cor bovinum in a boy thirteen years old. The ductus arteriosus was patent and showed an aneurospinal dilatation, as did the pulmonary artery. The aorta was stenosed near the origin of the left subclavian artery.

In the third case a rachitic baby of eleven months presented a congenital heart lesion, consisting of transposition of the origin of the great vessels with a rudimentary aorta and a dilated pulmonary artery, together with an open ductus arteriosus.

All the cases were observed with the help of the Roentgen rays.

Infantile Diabetes Mellitus.—Howard E. Lomax (*Albany Medical Annals*, Feb., 1903) states that this is relatively a rare disease, although it is not so rare as some authorities would have

us believe. It seems to be on the increase, but it is possible this increase is only apparent, as there is less difficulty in detecting the disease now than in former years. The etiology is more obscure than in the adult form. Heredity seems to play the first rôle, although the heredity is seldom direct; it is the predisposition to the disease that is inherited. Several members of certain families are frequently affected. It is said that diabetic children belong to families in which phthisical, uric acid or neuropathic affections prevail, and obesity and gout frequently exist in these families. Dentition, diet, locality, rapid growth, unhygienic surroundings, excesses of various kinds, injuries (especially of the head and vertebral column) and pre-existing disease have all received their share of blame. Gastric catarrh is the most notable pre-existing disease. As all authorities agree that lesions of the pancreas are particularly liable to give rise to diabetes in the adult, it is reasonable to suppose that some of these lesions can also produce the same disease in children. No recoveries from infantile diabetes mellitus have been recorded. Age, more than anything else, influences the prognosis. The treatment embraces dietetic, hygienic and medicinal means, but the last named have little or no effect. Medicines such as arsenic or iron, whose function is to increase the oxidation of the glucose in the blood, are theoretically and practically better suited to cases of infantile diabetes than are opium, cocaine or morphine. Massage and exercise are of value, as they increase oxidation. For the same reason frequent bathing with soap and water, and sun baths, are of service. Most authorities allow milk in moderation. The author's experience with adult diabetes shows that an absolute milk diet for from one to four weeks has a decided effect on the extreme thirst polyuria and quantity of sugar in the urine.

Infantile Scorbutus.—H. de Rothschild and M. Abramoff (*Rev. d'Hygiène et de Med. Inf.*, No. 6, 1902) say that if a child in a family in easy circumstances, which is brought up on a prepared food, or on sterilized milk, suffers from acute pain and swelling in the limbs, sub-cutaneous and palpebral ecchymoses, and lesions of the gums, we may be certain that the trouble is infantile scorbutus. The most common error is to mistake the early stages of the disease for rheumatism, but the fact that the joints are not involved should prevent this mistake. Parrot's pseudo-paralysis is an acute osteo-chondritis, which may easily be distinguished from sub-periosteal hematoma. Paralysis of medullary origin are marked by the existence of a true paralysis, which involves the sphincters. In scorbutus it is the pain alone which interferes with muscular action. Acute osteomyelitis has an acute onset with hyperpyrexia; both superior and inferior limbs may be involved, and there is pus beneath the periosteum. Should rickets with multiple hemorrhages, cloud the diagnosis, it can be cleared by treatment. In scurvy the treatment is simplicity itself, consisting in the administration of fruit juice alternated with the juice of raw meat. Milk also is to be given. The results are usually immediately beneficial.

Intussusception, an Early Case.—A. Jeffreys Wood (*Inter-Colonial Med. Jour. Australasia*, Dec. 20, 1902) reports the case of a child of 16 months, in whom a diagnosis of intussusception was easily made from the sudden onset of the affection, the lax abdomen and an unmistakable sausage-shaped tumor. Owing to the recent nature of the case (two and a half hours) and the typical position of the tumor in the region of the ileocecal valve, it was decided that an attempt to reduce the bowel with water was justifiable. The child was sent to a private hospital and three hours after the pain began vomited for the first time. Half an hour later it was anesthetized. The abdominal muscles were still lax, the tumor had increased to about four inches in length, the face was very pale and the pulse was 144 per minute and feeble. The buttocks were raised and water was run into the bowels by means of a No. 12 Nelaton rubber catheter attached to a douche-can raised three feet above the buttocks; the bowel filled rapidly, and as soon as the child began to expel the water, blood and mucus appeared with the fluid. The tube was again attached to the douche, and the bowel was again rapidly reduced from the same height. When this water was expelled the tumor could not be felt. The colon was then irrigated with a catheter attached by a rubber tube to a glass funnel. The bowel was first filled and then the water was syphoned out, and as it was allowed to fill the funnel, gas was seen to escape freely through the water in large bubbles. The color of the face improved immediately after the second flushing, and the rate of the pulse fell to below 100 and its volume improved very markedly. A sound sleep for two and a half hours followed the reduction. On waking the child was very bright and played with her picture book. A week later there was no sign of recurrence.

Lesions of the Tibial Tubercle Occurring During Adolescence.—Robert B. Osgood (*Boston Med. and Surg. Jour.*, Jan. 1, 1903) concludes from his researches that the adolescent tibial tubercle, from its situation and mode of development, is susceptible to injuries, especially in athletic subjects. These lesions are usually caused by a violent contraction of the quadriceps extensor. Fracture and complete avulsions of the tubercle are rare, cause loss of function, and are easily diagnosed, usually clinically, and usually by means of the X-Ray. Avulsions of a small portion and partial separation of the tubercle are more common. They do not cause complete loss of function, but without treatment long continued serious annoyance. The diagnosis should be made by a combination of the clinical and X-Ray pictures, and before the latter are accepted as evidence both knees should be skiagraphed and accurate technique observed.

Nephritis, Scarlatinal and Diphtheritic.—Heubner (*Münchener Med. Wochens.*, Vol. 50, No. 4) finds it easy to differentiate between these two forms, since they differ pathologically. In scarlatinal nephritis hemorrhagic changes are the prominent feature, being localized in the glomeruli more especially, while in the epithelial cells are only involved secondarily. In the nephritis

of diphtheria, on the contrary, it is the epithelium which is primarily involved, hemorrhages being only rarely present, never in the glomerule, but almost invariably in the neighborhood of the collecting tubules.

Operation for Obstruction of the Bowel in a Very Young Infant.—F. J. Campbell (*Northwestern Lancet*, Feb. 1, 1903) reports the case of an infant four weeks and four days old who had an irreducible right-inguinal hernia, which had been strangulated for about twenty-four hours when the author first saw it. The baby had retained nothing on his stomach for twenty-four hours, was vomiting bowel contents and crying constantly from pain. After a half hour's ineffectual effort at reduction, the child was sent to a hospital. Even under complete chloroform anesthesia the hernia could not be reduced, so the author operated as quickly as possible. The gut was very dark, but was returned to the abdomen, and regained its normal condition, as a bowel movement the next morning proved. The baby slept for six hours after the operation, then nursed, slept again for six hours, and made a prompt, perfect recovery, with a radical cure of the hernia. The undescended right testicle was found in the inguinal canal.

Pertussis.—M. Demay de Certant (*Bull. med. de la Clin. St. Vincent de Paul of Bordeaux*, Nov., 1902) calls attention to three different methods of treating whooping cough, each of which appears to have had successful results. I. *Action of ozone.* By means of Labbé's apparatus the child is made to breathe ozone for ten minutes at a time, three times a day, for a fortnight. The ozone does not act on the catarrhal period at the onset, but diminishes the frequency and the severity of the attacks of coughing. Should there be any complicating bronchopneumonia, the ozone will have but slight effect. It is non-toxic, and this gives it a decided advantage over many of the remedies used in pertussis. II. *Compressed air baths.* Properly administered this treatment modifies the coughing in its duration, intensity and frequency. The earlier the treatment is applied the shorter will be the duration of the disease. Twenty baths constitute the usual number given. The bronchial catarrh is favorably influenced, and the general condition and the appetite are improved. Complications are modified or averted. There are no contra-indications. III. *Spraying with carbolic acid solution, 25 to 1,000.* According to the originator of this treatment the affection is either abated or greatly modified, and is unaccompanied by complications. The spray should be used several times a day, the apparatus being held about four feet from the patient. The amount of fluid used will depend upon the age of the patient.

Radical Cure of Hernia in Young Children.—D. Kennedy (*Med. Press and Circ.*, Dec. 10, 1902) says that with regard to hernia in children being cured by wearing a truss he is of opinion it is the exception, and not the rule. Although a cure does occasionally result after years, he holds the treatment by operation is far less dangerous and far more surgical than treatment by trusses; because, so long as a child has a necessity for wearing a

truss, so long as he is exposed to the danger of the hernia becoming strangulated. And, besides this danger of strangulation, there are many and grave objections to a child being condemned to wear a truss for an indefinite period. Principally among these objections are (1) The truss causes a great deal of irritation about the groin, ending very frequently in troublesome eczema. This irritation makes the child irritable and fretful, and consequently prevents thriving. Secondly, it is impossible to prevent the truss getting sodden with urine and feces, and it becomes, in consequence, most objectionable and dangerous. Thirdly, the pressure of a truss, strong enough to keep up an ordinary hernia, prevents the muscles from developing in the neighborhood of the inguinal canal, and consequently, the abdominal wall is weakened, and large ruptures are liable to occur later in life. Fourthly, the expense of getting a truss frequently, as will have to be done as the child grows, is sometimes more than poor people can bear. But, the greatest of all objections to a truss in a child is that it is scarcely effectual in keeping up a hernia, and then it does more harm than good. He has met many such cases with the hernia coming down, and kept down so long as the truss was worn. With regard to the dangers of the operation, they are to a large extent imaginary outside those which exist in the same operation with adults. The author carried out the operation on at least sixty cases under five years of age, and at least a dozen of these were under twelve months old. He never had a death, never had any sepsis, beyond merely a stitch abscess; the patients all left hospital between the tenth and fourteenth days, and although he has made many inquiries about the children since operation he knows of no case of recurrence. What he has heard invariably was that the children were much quieter and thrived much better after than previous to operation. There are, however, a few points which appear to be essential to the success of the operation. First, no hemorrhage should be allowed to take place; secondly, the operation should be carried out as quickly as possible, consistent with attention to details, and in a thoroughly aseptic manner; and, lastly, the anesthetic should be properly administered. He especially insists that the child is not allowed to become half conscious at intervals during the operation, as he believes this to be productive of great shock. He has the child fully under the influence the whole time. He invariably uses chloroform. Collapse after the operation has been conspicuous by its absence. Pain was not usually present to any great extent, and, if present, was easily relieved by small doses of chloral hydrate. The author in operating carries out as simple a procedure as possible. He never allows the skin incision to go to the scrotum; he ligatures and resects the sac, and uses no means to fix it in the abdominal wall; he closes the canal after McEwen's method, and does not displace the cord. He invariably circumcises the child.

Tuberculous Meningitis, a Case of Recovery from, in a child.—Barth (*Munch. med. Wochens.*, Vol. I, No. 21) reports the case of a three-year-old child, with a tuberculous family his-

tory, who developed the symptoms of tuberculous meningitis after measles. Lumbar puncture withdrew fluid in which tubercle bacilli were demonstrated. After all other means of treatment had failed, the application of leeches brought about a change for the better. Deafness and psychic blindness remained for some time, and were ascribed to the effect of toxins upon the cortical centers rather than to areas of local inflammation.

ITEM.

THE SAMUEL D. GROSS PRIZE OF TWELVE HUNDRED DOLLARS WILL BE AWARDED ON JANUARY 1, 1905.

The conditions annexed by the testator are that the prize "Shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the competitor who receives the prize shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery, and that on the title page, it shall be stated that to the essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 219 South Thirteenth street, Philadelphia," on or before January 1, 1905.

Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

JOHN B. ROBERTS, M.D.,
WILLIAM L. RODMAN, M.D.,
WILLIAM J. TAYLOR, M.D.,

PHILADELPHIA, February 1, 1903.

Trustees.

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No. 5.

ORIGINAL COMMUNICATIONS.

A METHOD OF DETERMINING THE INTERNAL DIMENSIONS,
CONFIGURATION AND INCLINATION OF THE FEMALE
PELVIS.*

BY

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(With fifteen illustrations.)

THE desirability of a knowledge of the configuration and dimensions of every contracted pelvis is to-day recognized by all obstetricians. This holds good even though the pelvis be but slightly deformed, on account of the bearing of form and size of the pelvis upon the mechanism of labor and the weight to be attached to them when determining the selection of the appropriate operative procedure when such be indicated.

Heretofore accuracy in the diagnosis of pelvic formation has been almost entirely dependent upon the examiner's personal experience and versatility in manual exploration of deformed pelvises.

In his history of pelvimetry Skutsch records the efforts of Germann, Kiwisch, Martin and Kuestner in graphically reproducing in a more or less exact way either the course of the pelvic canal or the contour of the pelvic inlet. The methods were never exploited, either because it has been impossible to apply them in the living, or

*Read by invitation before the Chicago Gynecological Society, Feb. 20, 1903.

because the necessary apparatus has been too bulky and complicated. Undoubtedly the reasons are similar why the attempts have failed to reconstruct the natural size and shape of pelvis from X-ray photographs.

Regarding the measurement of the internal dimensions of the female pelvis in the living the interesting fact may be stated that within the last eighty or ninety years efforts toward finding better methods have been almost limited to improvements upon the principle of Wellenbergh. As you know, his method briefly consists in the following procedure: The distance is measured between the middle of the promontory and the middle of the upper edge of the anterior surface of the symphysis. Then the thickness of the symphysis is determined and subtracted from the first mentioned distance. The three instruments at present most favored in internal pelvimetry are those constructed by Van Huevel, Skutsch and Hirst, and are based upon the method invented by Wellenbergh.

The mode of pelvimetry to be demonstrated to-night is characterized by the introduction of an absolutely new principle. It advances the possibility of determining the internal dimensions, the configuration and the inclination of the female pelvis in the living.

The method is executed in practice by means of two instruments invented by Dr. J. Neumann of Vienna, and myself, which have been called by us the Pelvigraph and the Kliseometer.

Since the principle underlying the construction of these instruments and the required manipulations have been described in detail in a number of the *Monatsschrift fuer Geburtshilfe und Gynaekologie*, which appeared as a *Festschrift* in honor of our

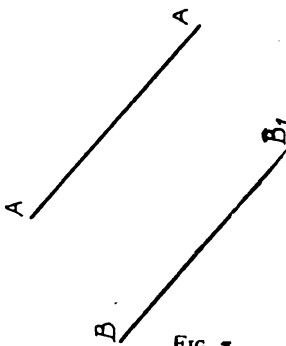


FIG. 7.

former chief, Professor F. Schauta of Vienna (vol. XI. No. 1.) I shall limit myself at this occasion to but a brief explanation of the most characteristic features of this new mode of pelvimetry.

If I draw from point A a straight line in any given direction,

and draw another straight line of the *same* length from point B in the same direction, (*i. e.*, parallel to the first), the distance between the end points of these two lines, the points A'B', is equal to the distance between the points A and B.

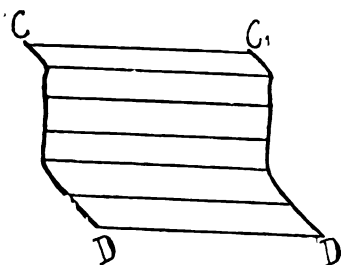


FIG. 2.

If I draw numerous straight lines of the *same* length, parallel to each other, in any given direction from numerous points of the given line C D, a line connecting the end points of all these parallels, C' D', will be a duplicate of line C D.

Imagine this line C C' (Fig. 2), replaced by a straight rigid rod. You will observe that its end C', if appropriately equipped with a marker, will create the line C' D', as a duplicate of line C D, provided that when this rod is moved, its end C remains in touch with line C D, and that in all points of its course it is kept parallel to its first position.

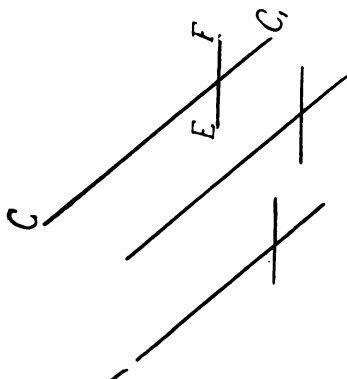


FIG. 3.

The question arose how to carry out in practice such a movement of the rod in parallels. A spirit level attached to the rod proved the solution of this difficulty.

Fig. 3 will illustrate the arrangement.

E F represents the spirit level which is fixed to the rod C C' at an arbitrarily chosen angle. If I move this apparatus, within a

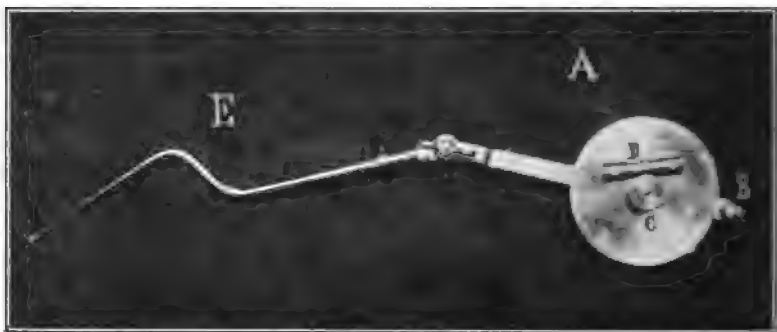


FIG. 4.—Pelvigraph.

vertical plane, so that the spirit level marks constantly horizontal, then necessarily the rod C C' will in every position be parallel to

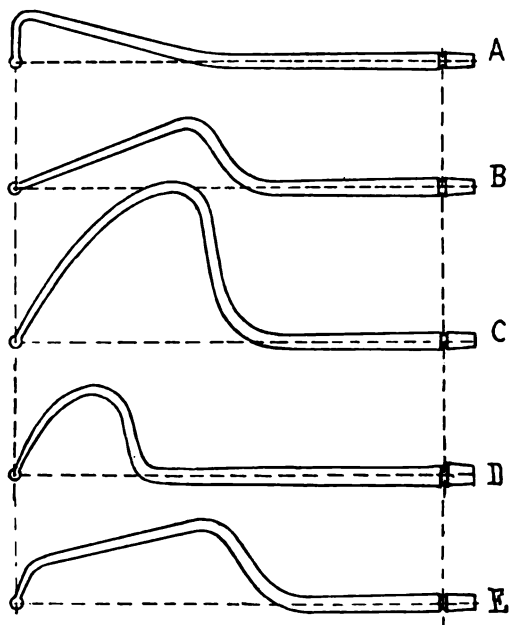


FIG. 5.

its first position, since it stands in every position under the same angle to the horizon.

This represents the principle underlying the construction of the Pelvigraph, the instrument which I desire to demonstrate first.

For convenience sake we have divided the instrument into two parts, each of which serves a special function.

The one portion (A, Fig. 4), used for registering purposes, carries at its end a marker (B). In front of this is a rotary disk, which can be fixed at any desired position by means of the thumb screw C. A spirit level (D) is attached to this disk. The other end of this registering arm has a cylindrical bore into which fits the exploring arm E.

A division of the instrument into two sections, a registering and an exploring arm, was found necessary for several reasons. The exploring arm is introduced into the vagina, and must, therefore, be capable of sterilization. The limited space of the vagina does not permit of a motion in parallels of a *straight* rod to any practicable extent. In order to reach all portions of the posterior and anterior pelvic wall, while the axis of the instrument remains parallel to the first chosen direction, we have constructed five differently curved arms, all fitting into the one registering arm.

As Fig. 5 shows, these five rigid steel arms have exactly the same length, and the knobs terminating the one end lie in the axis of the instrument. The arms may, therefore, be exchanged ad libitum, because whichever may be inserted into the registering arm, the axis and the absolute length of the instrument (that is the distance between the knob of the exploring arm and the marker of the registering arm), will remain unaltered.

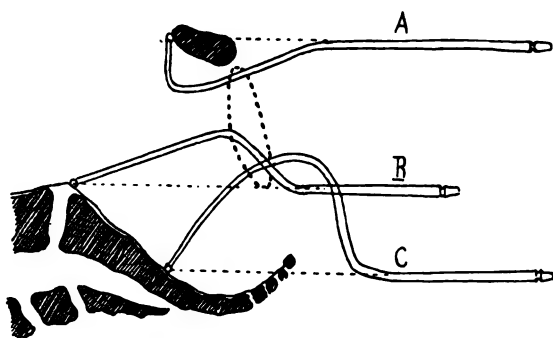


FIG. 6.

The next illustration (Fig. 6) gives an idea how it is possible with the help of these peculiarly shaped arms to touch various points of the sacrum and symphysis, the axis of the instrument moving in parallels. This illustration shows, furthermore, that arm A is designed for the symphysis, arm B for the promontory

and the upper portion of the sacrum, arm C for the middle and lower portion of the sacrum. Where a rigid perineum is encountered the use of arm D for the lower end of the sacrum and the coccyx may become necessary. Arm E is devised for the measurement of the transverse diameters of the inlet.

How this instrument is used in the living in order to measure the distance between any two points within the pelvis, or to obtain, in actual size, an exact outline of the median section through the pelvic canal, is shown in the next illustration (Fig. 7) and will be demonstrated by me on this skeleton pelvis.

The woman lies flat on her back on an operating table or examining chair. Her feet are placed in some of the usual crutches or stirrups.



FIG. 7.—Measuring true conjugate with pelvigraph.

In a symmetrical pelvis in this position the sagittal plane of the pelvis, lying between symphysis and mid-line of the sacrum, is vertical.

To the table we have attached a draughting board, 25x25 cm., which stands vertical, can be moved to either side and fixed in any desired position.

Now suppose we wish to determine the length of the true conjugate.

Under the direction of two fingers in the vagina, the end button of sterilized arm A is brought into contact with the middle of the upper edge of the posterior surface of the symphysis. An assistant takes charge of the registering end of the instrument. He adjusts the disks, carrying the spirit level, at a suitable angle, places the instrument flat against the draughting board, brings the spirit level to the horizontal by raising or lowering the free end of the instrument. So soon as the spirit level is found to be horizontal, he registers this point with the marker on a sheet of paper which has been attached to the draughting board.

The instrument is now withdrawn, exploring arm B attached, and the end button of this arm, in the same manner as before described, placed in contact with the middle of the promontory. Again by raising or lowering of the registering arm the spirit level is brought to the horizontal, and the position again marked.

The two pinholes thus produced on the paper represent the actual distance between the middle of the promontory and the upper mid-edge of the symphysis, that is the length of the true conjugate. It may then be accurately measured with a rule.

I can, of course, in the same manner, project many more points of the pelvic interior upon the draughting board. If I thus, for

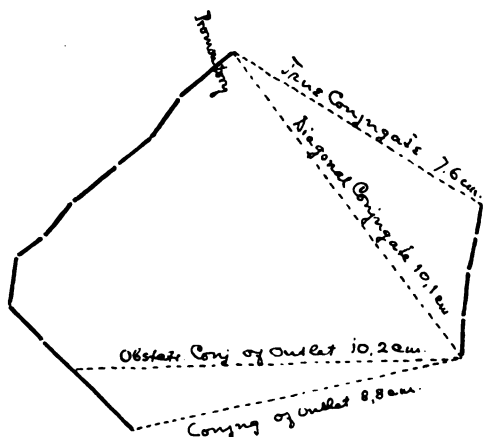


FIG. 8.—Generally contracted rachitic pelvis.

instance, proceed to map out points along the middle line of both the sacrum and the symphysis, I shall obtain an accurate likeness,

in natural size, of the vertical median section through the pelvis, that is, a picture of the pelvic canal.

I shall give here but three such diagrams, produced with the Pelvigraph from patients of Professor Schauta's clinic. They illustrate some of the typical forms of pelvic deformity, and will best demonstrate the efficiency and advantage of the instrument.

This is the diagram of a generally contracted rachitic pelvis, and shows all the characteristics of a rachitic pelvis in an unmistakable way; the flatness of the sacrum, the sharp bend in its lower portion, and the relatively large outlet as compared to the narrowed inlet.

Fig. 9 is the tracing of another patient. It represents a generally contracted, but non-rachitic pelvis.

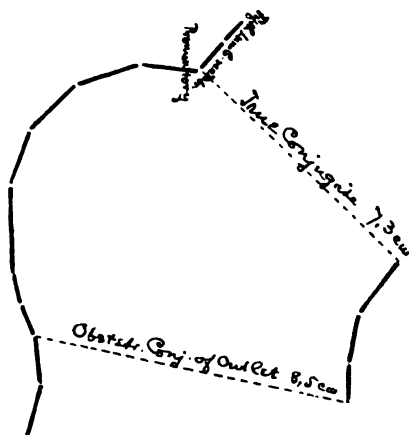


FIG. 9.—Generally equally contracted non-rachitic pelvis. Transverse diameter of Brim 11.7 cm.

This last diagram demonstrates the characteristics of a funnel-shaped pelvis.

It is obvious that the accuracy in the reproduction of the pelvic canal is dependent upon the number of different points projected upon the draughting board. A scrutiny of such diagrams in our possession, taken from patients, shows that we have projected on an average 4 to 5 points of the contour of the symphysis, and 10 to 15 points of the sacrum and coccyx. In some instances it is possible to reach the last lumbar vertebra as is shown in Figs. 9 and 10.

In order to be able to find in the diagrams (for a purpose to be mentioned later), the conjugate of the obstetrical outlet, the point

representing the junction between sacrum and coccyx is specially marked at the time this point is projected.

Since the surface of the pelvic canal in the living is covered with soft, movable and compressible tissues repeated measurements are

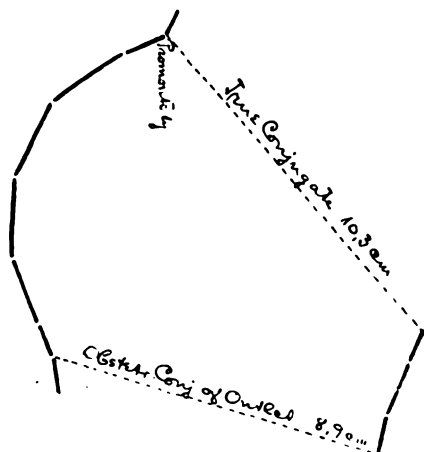


FIG. 10.—Kyphotic funnel-shaped pelvis.

found to show slight differences in the result, in particular because of the mathematical exactness with which the position of the knob of the exploring arm is registered by the marker.

Indispensable factors for the performance of exact measurements or the production of reliable tracings are the following: The possibility of manual exploration of the pelvis, an exact instrument and absolute quietude on the part of the patient. Regarding the latter point I may add that it can ordinarily be obtained without the use of any fixation bandages, simply by careful handling of the patient; if the need arise, an anesthetic may be employed.

The transverse diameters may be measured after the same method. In this case the patient is brought into a lateral position, so as to bring the transverse diameters vertical to the table. Arm E (Fig. 5), is used for this measurement.

Such diagrams form a very valuable aid for purposes of clinical teaching. Demonstrated simultaneously with the patients from whom they were taken, they are of considerable assistance to the student who is but little experienced in manual exploration of the pelvis.

These tracings show the direction of the pelvic axis, the length of the sacrum, the difference in the length of the diagonal and true

conjugates and other points of scientific interest, they will afford valuable information regarding the changeableness in the form of the pelvis, if taken in different position of the woman, e.g. in lithotomy and Walcher's position.

The Kliseometer, another instrument invented by Dr. J. Neumann and myself, is simpler in its construction. It is used to determine the inclination of the pelvis.

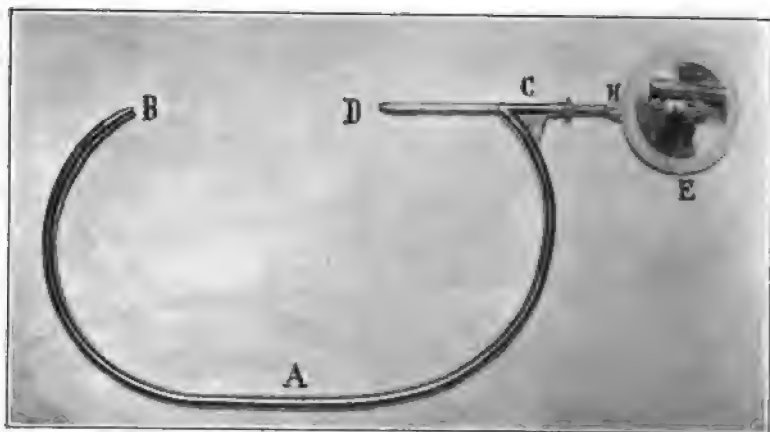


FIG. 11.—Kliseometer.

The Kliseometer consists of a rigid arch A (Fig. 11), which terminates at one extremity in a knob (B), and at its other extremity in a cylindrical carrier (C). The latter is attached in such fashion that a rod, sliding through this carrier, will always move upon an axis running through the centers of the cylindrical carrier and the distal knob. The internal end of this rod terminates in a knob (D), to the external end a disk (E) is attached. This disk is rotary and can be fixed in any desired position by means of a thumbscrew (F). Its circumference is divided into degrees, and to its surface is attached a spirit level (G). The arrangement is such, that a small pointer (H), slightly overlapping the disk, will designate zero, if the axis of the instrument, represented by a line through the centres of the two knobs, be horizontal.

If we bring the instrument to any angle with the horizon, we can readily define this angle by turning the disk, until the spirit level registers horizontal; in this position the pointer indicates on the scale the angle of inclination.

How this instrument is used on the living may be seen in this photograph.



FIG. 12.—Inclination of external conjugate determined with Kliseometer.

The two end points of the external conjugate are marked on the skin. Then the woman is placed in the so-called "normal position of Meyer," in which both the large toes and the heels are held in close approximation. The two knobs are brought into contact with the two previously marked points, the rigid arch of the instrument best held between the legs of the woman. The help of an assistant is necessary. Now the disk is rotated until the spirit level indicates horizontal. The pointer then shows the angle formed by the external conjugate and the horizon.

In this way our Kliseometer offers a simple means of measuring in a reliable manner the inclination of the external conjugate.

I shall conclude my paper with a short explanation how the combined use of both instruments, the Pelvigraph and the Kliseo-

meter, permits of the determination of the inclination of the *true* conjugate. As you know, this inclination represents in reality the inclination of the pelvis. But up to date the inclination of the *external* conjugate has been substituted, and had to be substituted, for it has been as yet impossible to determine the inclination of the true conjugate in the living.

As I have demonstrated, we are able to produce with the Pelvi-graph an exact tracing of a vertical section through the pelvic canal. In order to secure an entirely satisfactory and intelligent conception of the obstetric features of a pelvis it is necessary to also ascertain the position of the pelvic canal in the upright woman. It seemed obvious to use the inclination of the external conjugate for this purpose, but this would be too inaccurate since we know that in only a very small percentage of cases does the external conjugate really constitute an extension of the true conjugate. Usually they form an angle of varying size, which in certain forms of pelvis may be as large as 20 degrees.

In the tracings passed around (Figs. 8, 9, 10), you see that we always can find the conjugate of the obstetrical pelvic outlet, that is the distance between the sacro-coccygeal articulation and the lower end of the symphysis. We make use of this line as a basis to determine the real position in the upright. It is an easy thing to measure with the Kliseometer the inclination of this conjugate of the outlet. So soon as this angle is defined the real inclination of the pelvis can be ascertained by the employment of a simple construction. The lines representing in the diagram the conjugates of the inlet and obstetrical outlet are extended until they meet (Fig. 13). At the point of intersection we construct with the help of a protractor, the angle determined by the Kliseomotor as the inclination of the conjugate of the obstetrical outlet. The line thus found constitutes a base line, representing the horizon. I can now find the angle of the inclination of the true conjugate, that is, the inclination of the pelvis, by measuring the angle between this base line and the line indicating the true conjugate.

I give here once more the three diagrams, taken from the living, in which in the manner just described the inclination of the pelvis has been determined.

These drawings are so turned as to bring the line marked "Horizon" to the level, and in this way offer a very instructive conception of the actual positions assumed by these pelvises in the upright women.

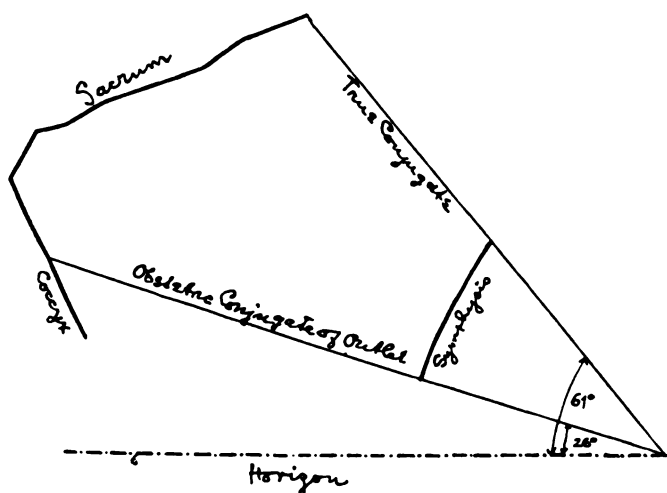


FIG. 13.—Generally contracted rachitic pelvis. Inclination of ext. conj. 64° . True conj. 61° . Obst. conj. of outlet 26° .

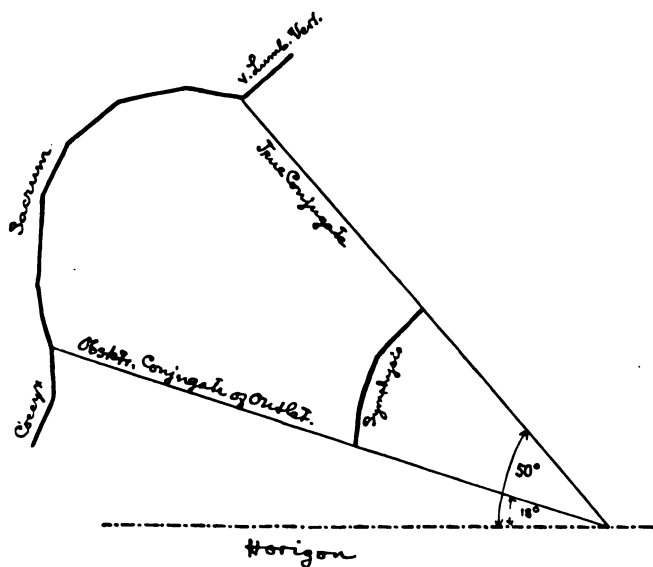


FIG. 14.—Generally equally-contracted non-rachitic pelvis. Inclination of ext. conj. 54° . Inclination of true conj. 50° . Inclination of obst. conj. of outlet 18° .

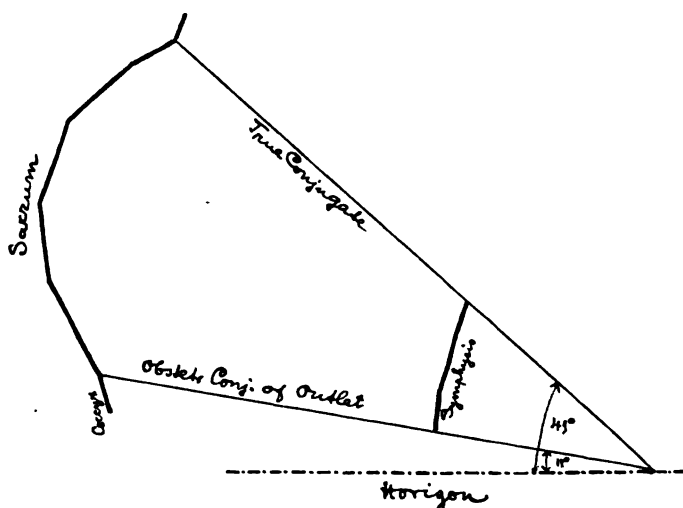


FIG. 15.—Kyphotic funnel-shaped pelvis. Inclination of ext. conj. 51° . Inclination of true conj. 41° . Inclination of obst. conj. of outlet 11° .

I feel justified in stating in conclusion that these two instruments afford the possibility of graphically reproducing the form and exact dimensions of the most important sections through the pelvis, and of permitting measurement of its real inclination.

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THE RATIONAL TREATMENT OF PUERPERAL INFECTION.¹

BY

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(With two illustrations.)

THE opprobrium of our vaunted twentieth century medical science is the inconsistency of our teaching and practice regarding the prevention and treatment of puerperal infection, for while we now know its pathology and etiology we often fail of such practical application of proved methods of prophylaxis

¹Read at the meeting of the El Paso County Medical Society, Colorado Springs, Colorado, February 11, 1903.

and treatment as are necessary for its control. More than half a century has elapsed since Holmes and Semmelweiss demonstrated the contagiousness of this disease and pointed out the means for preventing it, but from that time to this, it has been the reproach of medicine and medical men that these demonstrated facts were first ignorantly denied and then, in general practice at least, almost wholly ignored.

Rational preventive and curative measures are possible under most unfavorable conditions, as I hope to point out, and I appear before you with this little paper chiefly to make another plea for the application of surgical methods for the prevention and treatment of sepsis, and to again urge that they be universally applied to every day obstetric practice in the homes of our patients. The fact that the hospital mortality from puerperal sepsis is reduced to nearly nothing, though formerly so great, and that domicile mortality is about the same as ever is most significant.

Is it not high time we awakened to a full realization of our great responsibility in this matter and purged ourselves from this disgrace?

That the most frequent and most serious puerperal infections are of the streptococcus variety will be conceded and that these infections come from without and most often from the hands or instruments of the attendant is also true, though they may come from the patient or her environment if proper care is not exercised in cleansing the external genitals and having only clean materials come in contact with the vulva.

For all of this, however, the accoucheur must, ordinarily, *feel personal responsibility* though circumstances over which he can have no control must occasionally arise, and so an infection occur for which he cannot be blamed in any way. This is always true when pre-existing infections of the vagina, uterus or tubes have existed and the labor has served to disseminate it, and it may be true when one is called in at the last minute and sufficient time for aseptic details is not given, yet I repeat we should *feel personally responsible*, even though it would be manifestly unfair to hold one blameworthy in any such instance.

The remedy is to apply surgical methods to obstetric work, and to educate our patients to know their importance; which means clean hands and instruments, a clean field and environment, an empty rectum and clean absorbent dressings; each case being an object lesson to the patient and her friends, and one step in the

necessary campaign of education of the masses in the science of preventive medicine.

So far as may be possible the hospital treatment of obstetric cases should be encouraged, particularly for those in moderate circumstances and the poor who cannot afford in their homes ideal conditions and the best of nursing and attendance.

Hospital accouchement not only minimizes the risks from sepsis, eclampsia and all forms of dystocia, but it affords the best possible facilities for the management of all complications or accidents to the mother or child, and so not only decreases the direct mortality of labor, but the indirect also through the better facilities for the prevention and after care of lacerations and injuries, for how often does a life of chronic invalidism, and ultimate death follow delivery when unfavorable surroundings have made good results impossible.

With regard to prophylaxis I wish to speak of but two measures the practical application of which may be made possible everywhere and under the most unfavorable conditions.

I refer, first, to the establishment of a habit of making few vaginal examinations, and second, the routine use of rubber gloves.

External palpation supplements or supersedes the vaginal examination to a great degree when once the manual dexterity for its satisfactory performance has been acquired, and it is possible to conduct most of the cases one meets without any vaginal examination whatever.

Rubber gloves protect the physician as well as the patient. They are smooth, easily sterilized and wholly devoid of objectionable features while they have everything to commend them.

Obstetric practice is the field of greatest usefulness of the rubber glove, and no obstetric case should, in my judgment, be conducted without them. Their routine use will reduce domicile morbidity and mortality from puerperal sepsis to near the hospital figures.

Once established the treatment of puerperal sepsis must be rational, and consistent with the principles of modern surgical science as applied to like pathologic processes in other organs, and above all else we must teach ourselves the limitations and dangers of the uterine curette and douche.

The monstrous abuse of the uterine curette is still practised in this disease, notwithstanding its condemnation by most of those in the profession who are best qualified to form an opinion. In certain forms of sapremic intoxication with retained putrefying

ducts of conception its use is justified, but there can be no question but it does vast harm in any of the varieties of true puerperal septicemia, through a dissemination and distribution of the infection and the opening up of new areas for absorption.

Furthermore the administration of an anesthetic, which its use necessitates, is in severe cases of puerperal sepsis a most undesirable and unfortunate addition to the difficulties of the case, the kidneys are too often already overburdened with the elimination of toxins and but poorly fitted for the extra task thus put upon them. I think we may safely establish the rule that all puerperal patients with a pulse rate of 120 or over should be spared the administration of an anesthetic, if possible, and that when one is necessary in such a case a bad prognosis must of necessity be given. In this connection allow me to add that in puerperal sepsis of the graver types the pulse and the expression are the most indices of the true state of the case, and that the temperature may be near the normal throughout, and is seldom very high until within a few hours of death, while in a sapremia the temperature is often very high early in the disease, though the pulse is not rapid or bad in quality and the expression good. These are differential points of some value.

Of vaginal and intra-uterine douches little need be said. The antiseptic solutions ordinarily used may do some good, but are capable of doing very great harm if injudiciously or unskilfully used, and as we now possess better, safer and more easily applied means to the same end, I have almost totally abandoned them.

I mention the antistreptococcic serum and the Unguentum Iodè simply to say that I have no faith in the efficacy of either, while the first may be capable of doing great harm.

Laxatives and purges are also capable of doing irreparable mischief, for while they promote elimination they serve to disperse the infection when the peritoneum is involved, and salts, in particular, deplete and weaken, while the rational treatment is to stimulate and support. The instillation of normal saline solution is most valuable in this direction and directly opposed to the action of salts in so far as it fills up the blood vessels and promotes elimination without depleting. It remains to be proved how far the addition of formalin to this solution may aid resistance to the disease.

Whiskey, strychnine, caffeine, spartine, quinine and digitalis

are all valuable as sustainers as is also adrenalin chloride and these may be used in conjunction with other treatment.

The best results of treatment in this dreadful disease are to be secured through the rigid application of the same means indicated in other intra-abdominal infections, with the additional use of drainage by tubes and the intra-uterine irrigations of alcohol as advocated by K. Carossa in 1896, and first brought to the attention of Americans by Dr. Edward J. Ill, of Newark, New Jersey, in a paper read before the American Association of Obstetricians and Gynecologists in 1897.

To particularize, this requires absolute rest in bed, no purges and no food by mouth, and if nausea and vomiting occur, repeated stomach washing with the stomach tube till nausea ceases; rectal feeding, with stimulating and supporting predigested foods in small amounts every four or six hours and salt solution by rectum, hypodermoclysis or intra-venous injection as indicated. Once a day a cleansing rectal enema. Strychnia or other stimulants hypodermically.

Locally the conditions demand such treatment as may be applied to arrest or control the pathologic process without danger of distributing it and the manipulations must be so gently and dexterously done as to be possible without an anesthetic. These indications have been so very satisfactorily met in my experience of the past two years by a modification of the alcohol method of Carossa that I venture to give its details, as I find the method is little known and rarely practised.

The patient must be gently lifted out of bed on to a table, in a good light. The vulva and vagina are gently but thoroughly cleansed with soap, water, alcohol and a two-per-cent carbolic solution. The vagina is mopped out and dried and a Sims' speculum introduced. The cervix is grasped with a volsellum forceps and gently drawn down and steadied. The cervical canal is wiped out with gauze and any loose bits of membrane or fetal residue picked out with forceps. The uterine cavity may be gently irrigated with salt solution or even wiped out with pure carbolic acid, if the surfaces be covered with diphtheritic or streptococcic membrane and then gently dried with a strip of gauze. A double current drainage tube, like that shown, of as large caliber as can be easily introduced, is passed to the uterine fundus. Some 50 per cent alcohol is thrown through each tube with a glass syringe to assure freedom from obstructions. The vagina is lightly packed with gauze and the patient returned to bed.

All of this seems like a severe ordeal for a desperately ill patient to bear without an anesthetic. Indeed it may be so, but the end justifies the means, for we have at once provided complete and perfect drainage for the infected cavity (a detail of supreme importance), also a way to apply a safe nontoxic and most potent antiseptic to the direct seat of the disease at very short intervals, without exhausting or painful handling of the patient. The nurse is instructed to inject into the tubes, at short intervals, from two to four ounces of 50-per-cent. alcohol which at once flushes and cleanses the uterine cavity and retards septic diffusion through the lymphatic vessels along which it is passed in the process of being absorbed. Thus not only the original seat of the infection in the uterus and vagina may be drained and disinfected, but the very absorbents themselves may be saturated with a nontoxic antiseptic, the constitutional effect of which is precisely indicated for the more it is diffused and taken up, the better will be the effect.

A Denver colleague in one of his first cases treated by this method used 95-per-cent alcohol and had his patient in a state of comfortable intoxication for many hours from its uterine assimilation, and although she had been curetted three times, and was in a most desperate condition, he had the intense satisfaction of seeing her recover. I believe, however, that the 50-per-cent alcohol is ordinarily better and more efficient.

The tubes and gauze may be left in situ for from three days to two weeks, being kept free from obstruction with debris by the strong action of a good piston syringe. The fountain syringe will not do this. If, by any accident, the tubes are withdrawn, they must be reintroduced, but with the tubes I show you there is little danger of this if the shoulder is made broad.

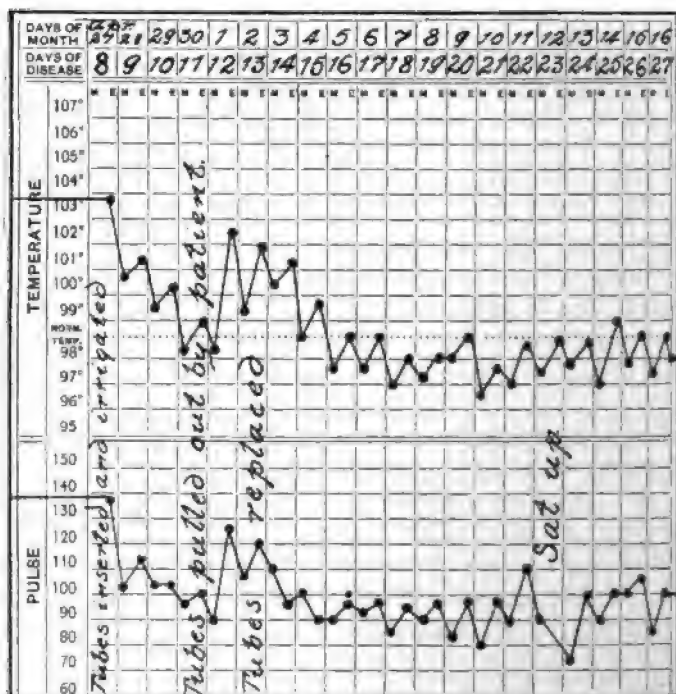


DRAINAGE TUBE.—Shoulder is made by cutting holes in opposite sides of tube near the middle and drawing an end through them.

As to the results of this method of treatment, I can only compare them to those witnessed some years ago in diphtheria from the use of the antitoxin, for if it be instituted sufficiently early—that is, before general sepsis and diffuse peritonitis are established

—the temperature, pulse and general expression of the disease are all rapidly altered for the better, and even in one desperate case of general sepsis, with extensive embolic pneumonia and diffuse peritonitis, I had the pleasure of seeing the patient recover under its employment.

My results, and I have had not a little experience with the method in the last two years, have been most gratifying and even at first so astonishing that I could scarcely believe them possible. But they are uniformly good and at last I have learned



to expect only good results in all but the very advanced cases of diffusion of the disease.

Permit me to exhibit a typical temperature chart from a case of septic endometritis from a self-induced abortion as illustrating the effects of the treatment. For some days before entering the hospital the patient's pulse and temperature had been about where we found them on admission, (138 and 103.8°). She was anxious and restless, distended and tender over the whole abdomen, in great pain and desperately ill, so that she and her

physician had expected that she would die. She was given no anesthetic, and she was not curretted. Please note the improvement in pulse and temperature immediately upon the institution of treatment, the relapse when she withdrew the tubes, and the rapid improvement when the treatment was resumed.

This is all so vastly different from our former experiences with the vaginal douche, the curette and the knife, that I feel compelled to do and say what may be in my power to have this simpler and safer method supersede them.

Regarding surgical measures in puerperal sepsis, let me add that further experience with curettements, colpotomies, oöphorectomies and hysterectomies only serve to confirm me in my general rule as applied to acute infections of any origin in the peritoneal cavity, which is, *never operate during the acute stage except as a last resort, and then always with the worst possible prognosis.* Occasionally a patient may recover in spite of the operation, however, if the after care is wise and rational.

Coming from one who practises surgery, the last paragraph may be regarded by some operators as sadly unorthodox and an expression of rank heresy, but my conclusions have been deliberately and maturely reached, after considerable personal experience and a close observation of the methods and results of those who have been more conventional and radical.

NOTE.—At the meeting of the New York Obstetrical Society of November 11, reported in the January number of this JOURNAL, a paper was read by Dr. W. S. Stone upon "Some Cases of Puerperal Septicemia and Their Treatment," and it was discussed by some of the ablest and best obstetricians of New York.

So far as one may judge from this report not a word was uttered in regard to draining and flushing an infected uterine cavity through tubes. No mention was made of the alcohol treatment of Corossa, though it was brought to the attention of the American Association of Obstetricians and Gynecologists at Niagara Falls in 1897 by Dr. Ill of Newark, New Jersey, and he tells me that "In the hospitals of this neighborhood it has become the standard treatment as soon as the diagnosis of Puerperal Endometritis has been made."

Can it be possible that a method so sound and rational in theory and so valuable and effective in practice is not known and not used in our greatest medical metropolis?

I note with pleasure the prevailing opinion of the abler men at this meeting against the use of the uterine curette and douche in this disease, but feel certain that the established routine of the average practitioner will be little changed for a long time to come, as the rut in which he works is

a deep and long-traveled one and as yet few can clearly see the way out of it.

For ten years I have protested against this abuse of the curette, and I hope to live long enough to see it universally cast aside in *all acute infections* of the female pelvic organs.

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PUERPERAL HEMATOMA; WITH REPORT OF A CASE AND
REMARKS CONCERNING IT.

BY

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Denaux was the first to give any systematic treatise on this subject.

It is of very rare occurrence and would require the aggregation of several hundred thousands of cases of labor to arrive at the exact truth of its frequency. Dubois only saw one case in fourteen thousand labors; Barker reports twenty-two cases which came under his personal observation. Hirst (*Text. B. Obs.*) places its frequency at once in sixteen hundred labors.

The predisposing cause is the engorged condition of the pudendal arteries and veins and the strain put upon them by labor; and to this may be added any pathological condition of the vessels as sclerosis or varicosities. The great number of women who have varicosities of the vulvar veins and the very few who suffer from hematoma would argue against the etiological importance of varicose veins. Croom (*Edin. Med. Jour.*, Vol. xxxi) attributes etiological importance to anteversion of the pregnant uterus. Hirst (*Loc. Cit.*) says an elongated cervix predisposes to its occurrence. Chronic nephritis has been given etiological importance by some writers, but when we remember the extreme frequency of nephritis and great rarity of vulvar hematoma it requires quite a long stretch of the imagination to connect the two conditions. Deformity of the pelvis or a disproportion between the child and the pelvis may cause it. Jewett (*Obstetrics*) mentions "circulatory disease or morbid alteration of the blood." He also says the accident is sometimes spontaneous. In the case herein reported I believe it to have been due to the rapid delivery of the after-coming head.

The exciting cause in most cases is the pressure of the fetal

mass on the soft parts of the mother. The use of forceps or other instruments; symphyseotomy, or the spontaneous separation of the symphysis pubis; the rapid delivery of the after-coming head; or the accidental striking of the parts against a hard substance, as in a case reported by Beck and Wagner, in which a woman struck the vulva on the edge of a chair, causing a hematoma to form which increased in size until it ruptured. The bleeding could only be controlled by continuous suture. (*N. Am. Pract.*, Feb. 4, 1903.)

It may occur before, during or after labor, but the vast majority occur during labor:—That is the vessel will be ruptured during the passage of the child's head over the mother's soft parts. Those cases occurring before labor will, I believe, usually be found upon close investigation to be due to violence. If small, it may be due to hemorrhagic diathesis, but the mere statement of the patient that she has not hurt herself in any way must be accepted *cum grano salis*—a violent attempt at coitus in the latter weeks might cause even a large hemorrhage.

Those cases occurring after labor have received the *injury which causes* it during labor and the act of sneezing, violent coughing or the act of quickly sitting up in bed has dislodged a thrombus and allows bleeding in those who would otherwise be free from it.

It varies in size from the smallest subcutaneous extravasation to a tumor holding several pints and reaching up to the umbilicus in front or the kidneys behind. It may occupy any position: its usual position is in one or other of the labia majora, but it may be in the perineum, before or behind the labia minora; rarely it occupies both labia; it may dissect up the vaginal wall or the deeper pelvic structures; it has been reported as extending in the subperitoneal tissue as far as the kidneys behind or the navel in front; it may burrow under the mons veneris or the inguinal ring and become subcutaneous on the belly.

If the effusion occurs above the pelvic fascia it forces itself upward; if below the pelvic fascia it dissects toward the vulva.

The symptoms depend upon the amount of blood lost, its location and the previous condition of the patient. Pain may be more severe in a comparatively small vulvar hematoma that is stretching the sensitive skin than in a much larger hemorrhage into the subperitoneal tissues; if the amount of blood lost, therefore, is great we will not only have the symptoms of hemorrhage—rapid pulse, quick respiration, sensation of choking, sighing, great pallor, etc..

but the pain will be in proportion to the amount of the hemorrhage, the location being the same. If the amount of the hemorrhage be extreme we will have in addition to the foregoing symptoms, thready pulse, blindness, syncope, or even death without the appearance of blood externally. The pain complained of by my patient was "stinging" and is usually described as "stinging," "burning," "lancinating," "sharp." The pain is produced, not so much by the traumatism that caused the hemorrhage, as by the separation and distention of living tissues by the interstitial accumulation of fluid; when it is above the introitus vaginæ and below the uterus—around the vagina—there will be added to the above pain, expulsive efforts excited by the presence of the foreign body in the vagina.

To the eye the tumor appears bluish or bluish-black in color, depending upon whether it is under skin or mucosa.

In the great majority of cases it appears after the birth of the child, but often before the delivery of the placenta. It may occur between the births of twins or before the completion of labor in any case and enlarge so rapidly as to constitute an obstruction to labor. Should a hematoma rupture while the hemorrhage is in progress—especially if it should rupture intraperitoneally—all the symptoms of hemorrhage would rapidly increase, and unless the attendant quickly made use of radical measures, the patient would soon bleed to death. Hirst reports such a case.

After active hemorrhage has ceased the hematoma may rupture subcutaneously, diffusing itself under the skin of a large area. The pain abates soon after the cessation of the hemorrhage, leaving only a sensation of tension, soreness and a tender tumor which, if the case progresses favorably, gradually becomes absorbed; or, if very large, may become organized in part leaving a permanent tumor. Should it become infected we will have the symptoms of suppuration added—redness, heat, pain increased, softening, fluctuation, and, should the case be neglected, symptoms of sepsis ensue:—rigors, high fever, sweats, abscesses in other parts of the body, rapid decline and death.

Hematoma must be differentiated from varicose veins of the vulva, hernia, inversion of the uterus, or vagina, blood clot, the placenta, or a fecal mass in the rectum. If occurring before delivery it might be mistaken for the placenta, and the same may be said in case it should occur between the births of twins, and to the latter must be added the presenting part of the second child. The two conditions, however, may be easily differentiated upon pal-

pation. From varicosities it is easily differentiated by the total absence of pain and their disappearance on pressure, and the absence of any of the symptoms of hemorrhage.

Hernia gives no pain unless strangulated, presents no symptoms of hemorrhage, disappears on the use of pressure, and does not present the discoloration seen in hematoma.

Inversions must be diagnosed by their anatomical characteristics, by the sudden and extreme shock—collapse—produced by uterine inversion, by their appearance upon inspection, and by the absence of pain. A blood clot may be wiped away and need scarcely be considered.

A polypus gives no pain unless of an expulsive character, presents no symptoms of hemorrhage and has not the discoloration seen in hematoma.

The placenta presents characteristic anatomical peculiarities which at once identify it.

A fecal mass does not present symptoms of hemorrhage, the sharp pain of hematoma, or the bluish discoloration. A rectal examination will be conclusive.

Occurring before labor or between the births of twins the anatomical characteristics of the placenta or fetus will differentiate the cases.

Prognosis: Formerly hematoma was regarded as a very serious trouble, the death rate being from 20 per cent to 40 per cent. Under the present aseptic treatment of cases death should occur very seldom—possibly not more than 6 per cent of cases now terminate fatally. The danger lies in an immediately fatal result from rupture or great hemorrhage after incision; or in a later death from exhaustion from suppuration or sepsis. Because of the danger of rupture, a hematoma that forms before labor or between the births of twins is much more dangerous than one forming post-partum.

The following case will elucidate much of the foregoing as well as give the treatment for an average case: Mrs. J. T. McC., æt. 30; iv. para; called me at 12:30 A.M., July 27th, 1902. I found os fully dilated, membranes ruptured and a breech presentation. The delivery of the breech was unusually rapid. The head came down in the left oblique diameter. I had drawn down the cord and as the body was expelled I pulled down the arms, placed my finger in the mouth, and with the next pain completed the delivery of the child by turning over the mother's abdomen, the entire labor from my arrival in the house having lasted not more than twenty

minutes. It was very easy and accompanied with less pain than ordinary.

The child cried at once and was severed from the mother; the placenta followed the child with the next pain, which came on only a few minutes after the child was born. Almost immediately after the birth of the child the mother complained bitterly of a sharp, stinging pain a little to the left and below the posterior commissure. I could find no laceration of the skin or perineal body, but soon detected a small, hard body just where the pain was most severe. This body enlarged to the size of a large closed fist and occupied the left labium majus and upper portion of the perineum: it projected across or into the vulvar fissure, forming a considerable obstruction to the exit of clots and débris. I immediately diagnosed hematoma and kept the woman quiet upon her back. She complained of being very weak and "smothery"—symptoms due to the loss of blood. I administered morphia and atropia hypodermically and gave 3i F. E. ergot internally. I also applied a firm compress held in place by a tight bandage.

She soon rallied and when I returned six hours later she was suffering no pain except a sensation of tension. The tumor had not increased in size, showing that hemorrhage had ceased. To the touch it was hard and tender. I continued the compress.

The second day I ordered an ointment of ichthyol and lanolin and left off the compress. At the end of four days the mass had sensibly diminished in size and with the use of the ointment and a general tonic the case slowly progressed. The woman was up at the end of the third week and when seen five months after delivery there was nothing to be found except a hard nodule the size of a small marble. This nodule gives her no trouble, and unless she should get it bruised, is not likely ever to become troublesome.

I believe in this case that some of the fibers of the transversus perinei or sphincter vagina muscle were lacerated with the accompanying artery by the after-coming head. I was not conscious of any unusual resistance or sudden giving away of the tissues; but the location of the tumor, and the fact that the head came down in the left diameter, the sudden oncoming of the symptoms and immediate appearance of the tumor, all indicate to my mind that there was some subcutaneous laceration by the after-coming head. It was beneath the pelvic fascia—*i.e.*, between the fascia and skin—because it burrowed downward, whereas if it had been above the fascia it would have burrowed upwards.

The treatment outlined above is applicable to all cases in which the hemorrhage is situated below the pelvic fascia and the tumor is not larger than the closed fist—to all cases in which the hemorrhage ceases before the life of the woman becomes jeopardized.

In case the hematoma should rupture while the bleeding is in active progress it should be firmly tamponed, or it may be possible to locate and tie the bleeding vessel; continuous suture may be necessary. If it should rupture intraperitoneally nothing short of immediate laparotomy would offer hope of a successful result.

In case the hemorrhage is below the fascia, and cannot be controlled by ice and compress, incision with turning out of the clots and ligation of the vessel, or if it cannot be found, continuous suture or tamponade, will become necessary, should the hemorrhage evidently be from the uterine arteries it is advised that they be ligated or clamped per vaginam. In any case of primary incision the wound must be closely packed with iodoform gauze. Many cases will require surgical treatment secondarily for the removal of the clot because of threatened suppuration or because of pain. In any case in which suppuration has occurred it must at once be laid wide open, washed out with hydrogen peroxide or other antiseptic agent and treated as an open wound. There is but little danger of hemorrhage from secondary incision.

In all cases the bowels must be kept open; the diet must be light but nutritious; the woman must have stimulants, tonics and alteratives as the nature of the case may demand, always remembering to keep the stomach in a healthy working condition. The skin and kidneys must be watched carefully in all septic cases. I have found that a calomel purge every second day was beneficial in any septic condition and believe here it would be beneficial. In long-continued cases with failure of nutrition some preparation of malt or beer has given me good results.

Those cases occurring before delivery will receive the same treatment as others, except that it may be necessary to incise the tumor to remove the obstructing mass.

CYSTIC BLADDER MISTAKEN FOR AN OVARIAN CYST.

BY

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WITH the diagnosis of ovarian cyst, a colored woman about 40 years of age was admitted to my ward. She presented a tumor, cystic in character, intra-abdominal, about the size of a man's head.

Two things were evident upon inspection; the bulging of the tumor in the lower abdominal segment, and its central location, although the large size made it involve the lateral aspects. I could not appreciate its relations with the uterus by simple palpation, but the latter seemed large and hard. The tumor was somewhat movable. My diagnosis was also ovarian cyst, without being able to determine from which ovary it had developed.

Patient was kept six days under observation, no change taking place in the size of the tumor. There was repeated, frequent micturition of small quantities, but the total amount excreted was normal.

The operation was performed on May 18, 1902.

Upon opening the abdominal cavity by an incision from the umbilicus to the pubis, the cyst came into view, all efforts to withdraw it were ineffectual. An incision through the cyst brought forth a watery liquid. The internal surface of the cyst-wall seemed to us so much like the bladder, that we directed an assistant to catheterize the patient.

A small amount of clear urine was drawn; the fact that the contents of the cyst were then bloody from the operation and that besides this we could feel the end of the catheter deeply in the tissues underneath the cyst-wall reassured us. Not finding a pedicle, we thought we might be dealing with a cyst of the broad ligament; enucleation was evidently impossible and our effort only produced a laceration of the tissues; we then decided to resect the greater part of the sac. Before proceeding further, the right hand introduced into the pelvis permitted me to feel a hard mass, about the size of an orange, which could be nothing but the uterus; on its being brought to the surface, the fact of a fibromatous uterus was made evident. There was no doubt then that we had been dealing with an enormously distended bladder. Separating this organ

from the uterus, I performed supra-vaginal amputation of the latter.

A second introduction of the catheter into the bladder brought out a small quantity of bloody fluid and the end, this time, appeared inside of the false cyst.

With the scissors, I resected the lacerated portion of the vesical sac and then sutured in two continuous planes; one sero-muscular with catgut and the other, serous, with silk. The abdominal wound was closed without drainage and a self-retaining catheter introduced.

The catheter was retained nine days; after that urine was voided naturally and spontaneously; there was no urethral or vesical irritation or other complication. Convalescence was rapid.

It is evident that the bladder was bent and compressed by the fibroma; the superior portion, communicating with the inferior one, emptied itself incompletely, until the time when the exaggerated flexure of the bladder shut it off entirely from the lower portion, thus establishing a permanent cyst. As the ureters voided into the lower portion of the bladder, no derangement took place other than the frequent micturition due to the reduced capacity of the bladder. The urine contained in the cyst lost its characteristics as in hydronephrosis, becoming watery.

Before the Pan-American Medical Congress, which met in Havana, I presented the following case:

In the course of a laparotomy for uterine fibroma, the bladder, which was firmly adherent to the tumor, which had dragged it to a considerable height, became lacerated. The tear was so great that the line of suture extended for 18 cm. In this case, which terminated successfully, I followed the same line of treatment as in the one described. Are we to infer from this that drainage by gauze of the peritoneal cavity should be abandoned? I think so, in such cases.

A careful suture, in conditions analogous to the ones described, ought to be followed by success; the thickened bladder wall in such cases permitting the line of suture to occupy a location well-guarded from contamination.

The case reported above shows how, even when we are on guard, circumstances may lead to wrong conclusions. In spite of the fact that the interior of the cyst suggested the bladder I was led into error, although it is true that catheterism before and during the operation showed no diminution in the size of the tumor and this to a certain extent makes the "sin less sinful."

The precautions which I take with regard to the bladder, in my laparotomies for fibromas, since the occurrence of the case here reported, may seem exaggerated to those who have not met with the accident described.

SALUD NUMERO 34.

THE TREATMENT OF GONORRHEA OF THE UTERUS.

BY

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THE treatment of gonorrhea of the uterus varies with the location and chronicity of the disease. The same methods should not be used in treating an acute gonorrhea that are employed in treating the chronic cases. Likewise the same drugs are not applicable for treating a gonorrhea of the fundus that are used in treating gonorrhea of the cervix. It is difficult to destroy gonococci in the uterus for the ducts of the Nabothian glands of the cervix and fundus furnish them such excellent hiding places that it is difficult to destroy them with drugs or remove them with the curette. They also may have penetrated the muscular structures of the uterus so deeply that it is impossible to reach them with the curette.

The methods I have employed during the past two years, both in my clinic and private practice, have given me very satisfactory results.

When the disease is limited to the cervical canal, the discharge should first be removed with my brush, a description of which can be found in the *Journal of the American Medical Association*, Jan. 26, 1901.

This brush will remove the tenacious secretion perfectly in a second's time. Then to the membrane which lines the cervical canal, a mixture consisting of 40 per cent carbolic acid and 60 per cent of tincture of iodine should be applied with prepared cotton on an applicator, care being taken that none of this mixture goes beyond the internal os. However, I believe it matters little what antiseptic is used here if the cervical canal is first cleansed, something that has been practically impossible for me to do until I had this brush made.

If there is much erosion about the external os, after making the application of iodine and carbolic acid, a tampon wrung out of one-per-cent creoline should be inserted into the vagina, and the patient should use daily douches of a weak solution of creoline. These applications to the cervical canal can be made once or twice weekly.

After the disease has gone beyond the internal os, the treatment varies with the chronicity of the disease. If the gonorrheal process is subacute, put the patient to bed, prepare her as carefully as though she were to have a hysterectomy performed, dilate the uterus carefully but thoroughly, then flush the uterus with two quarts of sterilized water, follow this with a few ounces of a one- or two-per-cent. solution of protargol, then lightly pack into the uterus gauze saturated with a two-per-cent. solution of protargol. Allow this gauze to remain in the uterus twenty-four hours, at the end of which time it should be removed. The uterus is again washed out with protargol solution. Continue to wash out the uterus once daily with the protargol solution until it becomes painful to insert the intrauterine douche point. This will happen in about one week or ten days. By that time the disease should be cured. If it is not, you have done your patient no harm; and you have increased her chances of subsequent recovery by the better drainage which your dilatation has afforded.

If the disease is chronic exactly the same procedures as above described are carried out excepting after dilating the uterus it should be curetted thoroughly with a sharp curette. Providing there is no pre-existing salpingitis, little fear need be entertained of this treatment starting it up. If salpingitis already exists not much is to be hoped from any local treatment the uterus may receive. Not once has gonorrhea gone to the fallopian tubes after the uterus has been treated according to the methods just recommended, whereas salpingitis developed so frequently after using the methods taught by most of the text-books that I practically determined never again to curette a gonorrheal uterus. The procedures I refer to consist in dilating, curetting, applying iodine and carbolic acid or a mixture of both, or a solution of chloride of zinc, then packing the uterus with iodoform gauze. Applying caustics to the uterus is condemned by Pryor, of New York, for the following reason. The slough that results from the use of the caustic forms an excellent culture medium for the microbes that have not been destroyed or have not been washed away. The protargol solution

will destroy all the gonococci it reaches, and it does not act as a caustic.

Curing a gonorrhea of the uterus does not bring quite so much glory to the doctor as does the performing of a hysterectomy, but it certainly adds much more to the patient's happiness. Patients should be examined before leaving the hospital and the husbands should be interrogated, for if they go home to a husband who has a chronic gonorrhea, they may not remain cured even though they left the hospital free of gonococci.

Just what percentage of cases are curable by these methods, I cannot at present state. The secretions from the uterus and the vagina from the last six cases I have treated have shown no gonococci three months after the operation, and symptomatically they are well.

878 W. ADAMS STREET.

SEPTICEMIA WITH UNCOMMON SYMPTOMS.¹

BY

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It is well known that inflammation of the parotid gland sometimes follows traumatism or diseases of the abdomen or pelvis but very rarely occurs after trouble in other parts of the body. If typhoid fever be considered an abdominal malady, as it essentially is, it is found that in thirteen out of two thousand cases parotitis took place, while in seven thousand cases of scarlet fever only once was the disease complicated by infection of this gland.

When it follows an injury or disease of some abdominal or pelvic organ, in nearly 95 per cent. of cases, it occurs as a solitary event, unaccompanied by any further lesion. No satisfactory explanation has been given of the connection between the lower abdomen and the parotid; probably the infectious properties are carried by the blood from the inflammatory focus to the gland, but why this and not other glands should become affected, is difficult to determine.

A very inadequate explanation is given in Pepper's system,

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advanced, however, as simply an opinion, that "the exciting cause is perhaps mechanical in nature, namely, the excessive dryness of the mucous membrane of the mouth so common in severe fevers. This dryness may lead to an occlusion of the orifice of the parotid duct, with retention of the saliva, which undergoing decomposition, may act as an irritant, producing inflammation, and finally suppuration of the glandular tissue. This is a likely enough explanation of the causation in some cases, but dryness of the mouth is such a uniform symptom of fever, and suppurative parotitis such a comparatively rare complication, that it cannot be a very active or common cause."

Though this statement was made less than twenty years ago, the writer has failed to connect the inflammatory condition with the presence of bacteria, as the causative agent.

When complicating ovariectomy or parturition, that is, conditions supposedly free from pyogenic bacteria, it does not make its appearance until a week or ten days have elapsed since the operation or confinement, and passing through a period similar to mumps, subsides gradually without suppuration. If the infection, however, be from a septic focus, as an appendicitis, pus tube or abscess in the pelvis, the liability to suppuration or gangrene is more than 50 per cent; out of 78 such cases, 45 suppurated and 33 resolved. As in mastitis, an enormous quantity of pus may be formed some distance below the surface and fail to be recognized for some time, because of the tense condition of the superficial tissues, the excessive tenderness and the absence of pitting on pressure, though finally well defined fluctuation may be apparent. The more usual course is for several small abscesses to coalesce, and while this is taking place, suppuration may be set up in the masseter and temporal muscles, and the pus force its way up over the zygomatic process into the temporal fossa, the periosteum and the cranial bones themselves becoming involved, with extension to the middle ear. In fact, the pus generally breaks into the auditory canal near the meatus or into the mouth, and this in spite of early incision, or it may burrow backward over the mastoid process and down in the neck. The lymph nodes in the vicinity become swollen, tender and also suppurate, while the nerves resist for a long time, until if the inflammation continues to gangrene, both the facial and the branches of the trifacial are rapidly destroyed. Of course, gangrene indicates extreme infection and is always dangerous, but in these cases, if the original inflammation in the abdomen has had time to subside, the risk to life is much less than if the two

were co-existent, and recovery is the more frequent result, though with the face distorted, the muscles on the affected side being paralyzed; hearing on the same side may also be permanently impaired, and the sight too, from paralysis of the lower lid. In the following case—the only one I have ever seen—nearly all the conditions just related, were present.

This lady, æt. 35 years, mother of one child, 12 years old, had always enjoyed fairly good health, except that occasionally she suffered pain about the heart, and had fainting attacks, and had been informed by her physicians that she had pseudo-angina pectoris. In the early part of 1901, had an attack of appendicitis, and the appendix was removed by Dr. Bull of New York—the abdomen being closed immediately without drainage, and the recovery uneventful.

On June 1, of this year, she was seized with a sharp pain in the right inguinal region. Ten days previously, while shopping in New York, her menstrual period had come on, and contrary to her usual custom of remaining quietly in bed at such times, she continued actively on her feet, though feeling quite bad, until her return home on June 4th. After resting two days, she was so much better that she took a trolley ride in the evening, returning thoroughly chilled, as she was thinly clad, and the temperature had suddenly fallen several degrees. During the night, pain began, and when I saw her, this was the only symptom. There was no fever, pulse was 78, strong and full, no tympanites or distention, the bowels having moved normally that morning. The seat of pain was at first below the lower end of the appendicitis cicatrix, gradually shifting further on until it was located immediately to the right of the bladder. My first thought was that she had strained the adhesions about the cecum, and later that perhaps a renal calculus was being passed, the urine containing a faint trace of albumen, but no casts. Gradually, with rest in bed, and hot fomentations to the abdomen, the pain subsided, and in four days she was sitting up, receiving visitors and said she was well. During the second night following, the pain suddenly recurred with greater intensity than before and I found a slight rigidity of the muscles at the lower end of the scar, and on vaginal examination a point of exquisite tenderness at the seat of the right ovary. Temperature 102° and pulse 90.

Next day Dr. Taber Johnson saw her with me. The area of inflammation from being located on the right side gradually extended to the left, indicating a general pelvic peritonitis, lasting

several days, during which period her suffering was very great. She was unable to retain nourishment by mouth and vomited at short intervals a peculiar greenish fluid of offensive odor, while the abdomen was greatly distended and fears of a general peritonitis were entertained. Foreseeing the necessity of opening the abdomen at this critical period her physician in New York, Dr. Hodgson, was sent for to meet us in consultation, but before his arrival, she had been greatly relieved by the injection high up into the bowels by catheter of a quart of hot water containing a table-spoonful of powdered alum, which though causing intense suffering, resulted in the passage of an enormous amount of gas with fecal matter and some mucus. Discharges of a similar character continued for the next three days, with gradual subsidence of abdominal and pelvic symptoms, until by the 16th inst., she was thought to be so far convalescent, that in a short time she could be removed to her summer home in New England. We were led to this decision the more readily, because she was fretting at being detained in this hot city. Up till now the case had been remarkable for the rapid development and as rapid subsidence of abdominal inflammation. On the evening of the 16th, she first spoke of her neck feeling stiff and of her head aching slightly, and within 48 hours, the whole right side of her face and neck, from the clavicle to the temporal fossa, was enormously swollen, the parotid region being especially hard, tense and glistening. Dr. Compton now joined us in consultation. Hot fomentations for a few hours were succeeded by applications of ice, which were continued as being less likely to encourage suppuration. Though her fever was now about 103° , the pulse rate rarely passed 90; she was very restless and nervous, being kept awake by pain in the neck. Phosphate of codeine $\frac{1}{2}$ gr. hypodermatically repeated once or twice in the 24 hours, was usually sufficient to make her comfortable, though swallowing was difficult. From being at first red, the whole side of the face, from the temporal region to the chin, assumed a greyish purple tinge and was exceedingly hard to the touch, very tender on pressure, and glazed and shining, as if highly polished. The auditory canal became occluded by the swelling and the right eye closed. Breath very offensive and throat sore.

In the meantime, the urine which had been normal in quantity and quality, since just after the beginning of her illness, became greatly reduced in amount, and while the parotid inflammation was at its height, contained sometimes 25 per cent. by volume of al-

bumen and numerous granular and blood casts. Cups were applied over the kidneys twice for twenty-five minutes, and infusion of digitalis $\bar{5}$ ss every four hours administered, but for two days the average was less than $\bar{5}$ 20 in 24 hours. Free purgation, however, prevented any uremic symptoms.

On June 21, though as yet no fluctuation could be detected, the fauces were almost closed by the great swelling about the right tonsil, and free incisions were made in this region, also in the cheek from the interior of the mouth, and in the auditory meatus, without appreciably relieving the state of affairs. June 23, an incision below the ear led to the exit of one-half a drachm of pus with pronounced odor, which later became quite profuse in amount, but the general tumefaction was not reduced, and on the 28th, nitrous oxide was administered and an incision made into the parotid, which was found to be gangrenous, large sloughs being removed, and only about three ounces of pus. There being now deep fluctuation in the neck, another incision was made two inches above the clavicle, and a drainage tube passed from one opening to the other.

June 30th. Large amount of discharge in dressings, containing particles of slough and reddish pus; the right eye closes very slowly and remains open when asleep. Face distorted, being drawn to the left side, especially about the mouth; tongue protrudes to the left.

July 1st. General condition so much improved that it was thought safe to remove her to New York, but on the train the heart for the first time flagged, and it was necessary to resort to energetic stimulation. After this date, I did not see her, but a letter received in September stated she was rapidly regaining strength, though the facial paralysis remained.

The noteworthy features of this illness were the nature and cause of this rapid pelvic inflammation and the slow development of the gangrene in the parotid. It hardly seems possible that latent infection in the right Fallopian tube as a result of the appendicitis eighteen months ago, could have been present and led to the pelvic peritonitis at so late a day. The uterus itself was perfectly normal.

PRURITUS VULVÆ AND ALLIED CONDITIONS.¹

BY

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of Washington, D. C.

THIS distressing and annoying affection continues to be the bug-bear of gynecologists and physicians in general. While gynecology has made rapid strides in the last quarter of a century, in respect to this particular malady we are apparently not much better off as to treatment than we were in the early days of gynecology as a specialty.

A mere glance at the long list of remedies suggested for its relief is ample proof, if proof were required, that we do not as yet thoroughly understand its pathology or have any one agent adequate to its cure. Every new medicated soap or dusting powder which the ingenuity of German laboratories can devise is vaunted as the hoped-for specific for this disease, only to follow its predecessors into the limbo of useless and abandoned remedies.

I cannot hope to present anything new or important in the way of pathology or therapeutics but shall only aim at presenting a brief résumé of the affection and some of its complications and sequelæ in the hope that a free interchange of opinion and experience may bring out something helpful to all.

While this affection is not, strictly speaking, a disease but only a symptom of disease, it is, like diarrhea, a symptom of such overwhelming importance that it overshadows the original disease and becomes the point of therapeutic attack.

It may be defined, for our purposes, as a hyperesthesia of the nerves of the vulva leading to and accompanied by an intense itching. Beginning as a slight irritation it produces an irresistible desire to scratch the affected parts. This procedure naturally leads to increased irritation and inflammation making the itching more intense than ever. Thus is established a vicious circle, the final result in severe cases being that the very existence of the unfortunate patient is rendered miserable and that life itself becomes a burden to the worn and despondent woman. Fortunately the itching is not always so severe or so constant. It may be intermittent, coming on when the patient is overheated from any cause

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or presenting itself, for instance, at the menstrual period only. In some reported cases it was a symptom accompanying pregnancy. A common type is the form which comes on at night. This type was present in one case under my observation and was so severe as to seriously interfere with sleep. The patient stated that she actually dreaded to have night come on as she knew that it meant for her only hours of misery and torture with intervals of broken and unrefreshing sleep.

In a case of any standing as to time the area of the disease spreads by continuity beyond the limits of the vulvæ and may extend to the thighs and abdomen. The constant scratching renders the skin red, inflamed and abraded and gives it, at times, a macerated appearance.

The causes of pruritus may be grouped under three general heads—First. The contact of irritating discharges. Among these may be mentioned as specially important, leucorrhea, hydrorrhea, diabetes, dribbling of the urine from any cause, urethritis and the discharges accompanying malignant disease of the uterus or neighboring organs. Second. Local derangements of the vulva such as vulvitis, aphthæ, vulvar eruptions, animal parasites, vegetations, urethral caruncle and the growth on the vulva of short, bristly hairs. Third. General derangements of the nervous system or those general diseases leading to debility of the system.

It is probable that, in the majority of cases, the cause of pruritus must be sought in an irritating discharge of some kind and of such irritating discharges that of endometritis undoubtedly holds the first place as a factor in the causation of this malady. The amount of discharge need not be large, in fact in some cases it may be so small as not to be noticeable without the closest scrutiny. It is the character and not the quantity of the discharge which produces the pruritus. That it does not always follow any lack of personal cleanliness is evidenced by the fact that these cases are seen more frequently among the better classes and in those having, presumably, the time and inclination for personal cleanliness than among those in the lower walks of life, whose attentions to personal hygiene are, to say the least, intermittent.

This affection is a frequent accompaniment of diabetes and is usually ascribed to the constitutional effects of that disease, but an observation noted by Thomas suggests a different view. Thomas says that in several of his cases where diabetes was present, the frequent use of the catheter greatly alleviated the disease. This would seem to indicate that it was rather the contact of the

diabetic urine with the parts than the constitutional effects of the disease which caused the pruritus. For this reason diabetes has been put among the first class of causes of the affection.

A short summary of the anatomy of the vulva may make it clearer why superficial affections of this locality are likely to be persistent. The labia majora are formed by integument covered with hair on their outer surfaces. The inner surfaces are more like mucous membrane but contain sebaceous glands instead of mucous follicles. The tissues beneath the skin are connective tissue, elastic elements and fatty lobules, with an underlying basis of fat. There is an abundant vascular supply. We thus have a part which is naturally warm and moist; with numerous sebaceous glands; subject to constant friction from clothing and movement and constantly bathed by discharges which may be acrid. Every condition is certainly present to favor a maceration and chronic inflammation of the skin, accompanied by such an irritation of the nerve ends as would lead to constant itching.

Pruritus vulvæ, while not in itself dangerous to life, may yet eventuate in and be complicated by conditions which demand active intervention for their relief.

One of the most interesting diseases of the vulva and one in which pruritus is the initial and chief symptom is the condition described by Breisky as kraurosis vulvæ. This is a very rare affection, Fleischmann having observed only eight cases among some fifteen hundred patients and Lewin none in seventy thousand. Pathologically the disease is characterized by marked lesions both of hypertrophy and atrophy in different portions of the epidermis, with a general inflammatory condition of the corium and subcutaneous tissue. At intervals along the surface, cracks or fissures are found, which usually penetrate the corium and are often filled with blood crusts. Following the horny layer into the diseased portion it becomes enormously thickened in some areas and in other localities almost entirely disappears. This alternation of atrophy and hypertrophy is the characteristic feature of the disease. No disease of the nerves has as yet been demonstrated. As to the condition of the tissues beneath the epidermis there has been noted a hyaline degeneration of the elastic tissue with patches of sclerosis and absence of capillary vessels in the corium. In a case carefully studied by Boldt and Williams no sebaceous or sweat glands could be found in any of the preparations.

The authors above quoted (*Amer. Jour. of the Med. Sci.*, Nov. 1899) give in their exhaustive paper a full summary of the views

of different observers as to the etiology of the condition, some of which may be quoted.

Breisky, who saw twelve cases, attempted only a clinical and pathological description and could furnish no valuable etiological suggestion, beyond the fact that some of the patients had suffered previously from a vaginal discharge and that in a number of them symptoms of pruritus were markedly present.

Jenowsky (six cases) compares kraurosis with leukoplakia of the mouth and tongue.

Orthmann (five cases) ascribes an etiological place to gonorrhea and a leucorrhœal discharge.

Hallowell placed kraurosis among the large and interesting group of chronic inflammatory diseases of the skin and mucous membrane, such as *ozena*, psoriasis of the mucous membrane, chimney-sweepers eczema and others, all of which are characterized by hypertrophy and metaplasia of epithelium, a hardened corium and a tendency to terminate in epithelioma.

Reed saw six cases, and as a result of a study of these and the reports of others, he inclined to the theory that disease of the peripheral trophic nerve-filaments, or of the ganglia whence they originate, was the primary etiological factor. This theory, however, has no supporting evidence.

Veit describes kraurosis as a narrowing and shrinking of the vulva, which is brought about by an inflammation of the skin, which again is brought about, after intense itching, by scratching. That not all cases of pruritus pass on into kraurosis is explained by the fact that many patients seek treatment for pruritus, and a sufficient alteration of the skin is not produced to bring about shrinking.

Sanger and Martin both lay stress on the inter-dependent relations between pruritus and kraurosis, while Martin places special weight on its development out of a previously existing inflammatory condition. Sanger alludes to it as a senile and pre-senile atrophy of the vulva.

Boldt and Williams, in their monograph already alluded to and to which I acknowledge my indebtedness, ascribe to kraurosis an inflammatory origin, and agree with the hypothesis of Veit, that the itching induces scratching, which in turn sets up a chronic inflammatory condition, with the formation of cicatricial tissue in the deeper layers of the derma and subcutaneous strata, shrinkage and contraction of the vulva and atrophy of the skin surface. They recognize the fact that the larger number of cases of pruri-

tus apparently do not degenerate into kraurosis; it seems likely, therefore, that there is some other element which causes further changes than ordinarily take place with the symptoms in this disease. This element they believe to be a microbic invasion of the skin and subcutaneous tissues.

The clinical picture of a case of kraurosis is well shown in the report of the following case, which recently came under my observation, and which also illustrates very well one of the tendencies of the disease, namely, its liability to result in epithelioma.

The patient was Mrs. M., widow, white, about sixty-five years of age, seen by me in consultation with Dr. George N. Perry. She had been a widow for many years, having had three children and no miscarriages. The family history contains nothing of importance bearing on this condition. Her personal history is that of uniform good health up to twelve years ago, when the phenomena of the menopause appeared and, among other nervous manifestations incident to that period, an intense itching of the vulva occurred. For this she consulted her physician, but, through a false sense of modesty, she refused to submit to the examination of the affected parts which he deemed necessary to an intelligent treatment of her case. Accordingly she had borne for twelve years, as best she could, the pruritus, which, at times, was very intense and caused her great suffering. There were spasmodic efforts at treatment of an empirical character, but no systematic attempts to cure the trouble. In June, 1902, she noticed two growths on the right labium majus, which seemed to increase in size during the following two months and which were at times the seat of sharp, lancinating pains. In September, three months after the first appearance of the growths, she so far overcame her scruples as to consent to an examination by Dr. Perry, who found the condition described below and asked me to see her with him. I found her to be a well-nourished woman, in good physical condition. The labia minora were so shrunken and atrophied as to be identified with difficulty. Both labia majora showed patches of red, angry-looking, thickened epidermis and mucous membrane, alternating with areas of greyish-white, atrophic tissue. At the time of my examination the grey areas were in excess of the red. The disease involved the clitoris and fourchette and extended outwardly to the sound skin of the pudendum and inwardly as far as the mucous membrane of the vagina. The line dividing the labia from the vagina was distinctly marked. On the right labium majus, at its upper part, was an excavated, fissured ulcer, a half-inch in

diameter, with ragged edges and containing crusts of dried blood. At the lower part of the same labium was an elevated, hard, red, circular nodule, an inch in diameter, sensitive to touch and painful on pressure. No involvement of the inguinal glands could be detected. There was no apparent disease of the uterus or adnexa and her general condition was excellent, all the vital organs being in good condition. The urine was examined and found free from albumen and sugar.

The case may be summarized as follows: Pruritus vulvæ, appearing, as it so often does, at the menopause and running an unchecked course for twelve years; kraurosis developing at some time during this period and the two conditions finally resulting in epithelioma. Obviously the only treatment appropriate to such a condition was excision of the affected area. This was recommended and was accepted by the patient after some little hesitation as she had the impression that something of a medical nature might be done for her relief. Accordingly on September 29, 1902, I dissected out the involved area. The excision extended laterally from the sound skin to the mucous membrane of the vagina and perpendicularly from the mons veneris to a point midway between the fourchette and the anus, circumscribing the meatus urinarius. The clitoris was completely excised. The flaps came together without tension, although it was necessary to unite the margins of the urinary meatus to the skin on both sides. The healing was aseptie and convalescence uneventful. I heard from this patient a few days since to the effect that there had been complete relief from all her troubles and that there was no evidence of any recurrence, either of the kraurosis or the malignant disease.

The report of the pathologist was to the effect that the nodule was epitheliomatous in character. The diseased skin is undergoing a more extended examination the result of which has not as yet been received.

The treatment of pruritus resolves itself into a search for the cause of the disease and an effort to remedy it. The uterus should be carefully examined and any discharge, however, slight it may seem, should be remedied by curettage or otherwise. The urine should, of course, be examined for sugar in view of the association of many of these cases with diabetes. In this connection attention should be paid to the bladder and urethra and any dribbling of urine corrected.

Any demonstrable disease of the liver or digestive apparatus would call for a careful regulation of the diet. As a general rule,

tea, coffee, alcoholic liquors and all highly seasoned food can be abstained from with advantage to the patient.

In the way of local treatment, the number of remedies advocated for this annoying affection is legion, which in itself is a sufficient proof that none of them is of decided benefit. I have none to add to the already long list. Suffice it to say that every powder, salve or lotion that has ever been suspected of having anti-pruritic properties has, at one time or another, been used or suggested for this disease with the result that our pruritic patients still continue to scratch.

As the disease is aggravated by heat moisture and friction, the dictates of common sense would suggest an avoidance of these factors so far as possible.

The success of excision in cases of kraurosis leads me to advocate it for cases of simple pruritus, after a reasonable trial of the ordinary remedies. It is not difficult of execution and the final result is all that could be desired.

1013 FIFTEENTH STREET.

THE REASON WHY LACTATION CANNOT BE PROLONGED UNDER EXISTING CIRCUMSTANCES.

BY

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At the last meeting of the American Gynecological Society in the discussion of a paper on "A Further Contribution to the Study of Lactation Atrophy," one member made the remark that "it was a mistake to tell a woman to stop nursing at seven months; she should go on nursing for at least two years." In the face of present opinion this sounds as incorrect, and one almost wonders at the statement; but is it an erroneous opinion? It is known for a fact that children nursed for twelve and fifteen months and even longer in a few cases by their mothers are usually the subjects of rickets, marasmus and various other disorders of childhood. The theory is that the mother's milk is not sufficiently nourishing, does not contain all the nutriment that the nursing child demands, and that consequently mother's milk must be exchanged for food better suited to its needs. This other food is mainly cereals and cow's milk for the best authorities deprecate the feeding of young children with meat and the ordinary food stuffs of adults. Meat is

too stimulating to the child's nervous system which in its impressionable stage of childhood does not require stimulation as it may later on, but requires nutritive material to develop it. If a child is fed on cereals—vegetable albumen—and cow's milk it is getting a diet very similar to that furnished it by its mother. Cow's milk is richer in proteid matter—casein; but this is an ingredient which tends to rapidly develop muscular and fibrous tissue and although these portions of the child's body require to be developed still the young child is not destined to be a young cow but a young human being with a much higher grade of intelligence than its bovine fellow and it is not desirable to develop its muscular at the expense of its nervous system as may be done by feeding on cow's milk. This vegetable albumin, contained in cereals is not as easily digested by the delicate organs of the young child as is albumin of the mother's milk. Its digestive system will be overtaxed to digest this, or else it will be cast off in undigested masses acting not as a food but as an irritant. Moreover, cow's milk already containing so much proteid matter does not require this extra amount of vegetable albumen. Cow's milk is deficient in sugar, that ingredient which is so necessary for the production of heat in the young child. "It is its dietetic birthright." The amount of fat is less in human milk but the excess of sugar will obviate this difficulty. The greater amount of water in human milk renders the digestion and assimilation of the solids more easy for the delicate organism of the child. The slow rate of bony development does not require the same amount of salts or mineral matter as does the rapidly maturing body of the calf.

| Human Milk. | Cow's Milk. |
|-----------------------|-------------|
| Proteids35..... | 68 |
| Fats25..... | 38 |
| Sugar48..... | 30 |
| Water890..... | 858 |
| Salts2..... | 6 |

In attacking this diet one is attacking the best one allowed to the child after weaning, for a great many children are deprived of even cow's milk and given starchy food ad libitum.

The question is why should lactation be interrupted as it is at seven, eight or nine months? Why does mother's milk deteriorate in quantity and quality as lactation advances? The ordinary mother's milk does deteriorate and the reason is not difficult to ascertain.

There is a physiological generative cycle—ovulation, pregnancy and lactation—a lesser cycle of which is ovulation and menstruation. In the civilized woman this last cycle is a monthly phenomenon of her generative system; in some uncivilized woman—natural woman—it is not a monthly phenomenon but occurs only at certain distant periods or seasons or a few times in the year. I do not believe that it was ever intended to be a monthly phenomenon but that such has been the result of broken natural laws, menstruation being the result of a disappointed pregnancy, which never occurs in lower animal life nor in primitive human life. Naturally ovulation should occur, then pregnancy, then lactation and at the termination of this ovulation again. It is known that primitive women, Hottentots for example, bear few children—four—and that they nourish them for two years or more. Now, in these primitive, uncivilized races sexual intercourse occurs only at certain times, as it does in the lower animals and in response to natural law and not alone to satisfy the intemperate desire of civilized humanity. The white elephant of civilization is this disobedience to natural law. Returning from this digression to the statement that there is a physiological generative cycle—ovulation, pregnancy and lactation—we shall proceed to discuss the physiology of this phenomenon. When ovulation, the first factor in this cycle is in progress the greater portion of the blood in the generative circulating system is directed to the ovaries, which are in a condition of physiological congestion;—every normal physiological act is accompanied by a physiological congestion—ovulation being over and fecundation having occurred the congestion is transferred to the uterus. Upon the termination of pregnancy it is transferred to the mammary glands for the function of lactation. To every one of these three organs, ovaries, uterus and mammary glands, an active hyperemia, under the control of a healthy nervous system is necessary for the free and normal performance of its function. If from any cause this normal cycle is interfered with and more blood than is required to keep the non-functionating organs in health is directed to them, then the one supposed to be in an actively functioning stage is deprived of its normal amount of blood and its function is lessened. In the case of the mammary glands the secretion of milk is diminished in quantity and quality. Now, in the majority of married women of civilization, ovulation and the late months of lactation and even pregnancy in its early months and lactation are concurrent functions. The mammary glands in these cases must be deprived of a

sufficient amount of blood and this secretion will therefore be insufficient in quantity and deficient in quality. If sexual excitement which is a factor in causing the re-determination of blood to the ovaries were not encouraged by sexual intercourse during lactation the mother could with benefit to herself and her offspring furnish the child with a sufficient and efficient food for a much longer time than she now can, when natural law is not understood and obeyed. When the day comes in which reproduction alone is regarded as the cause for exercising the sexual act, then happiness and health may be looked for. This one disobedience or ignorance causes untold worry and misery to thousands and all because they do not know or will not observe natural law. Only one portion of the cycle at a time can properly be completed.

Box 961.

THE UTERINE INCISION IN CESAREAN SECTION.

BY

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IN the Surgeon-General's Reports I noted records of more than 1,000 cases of Cesarean section. Probably treble that number have been done. Dr. Fritz Curschmann from Giessen, in the *Monatschrift f. Geburtshulfe und Gynakologie* of August, October and November, 1902, has tabulated reports of 119 cases, with cross incision of fundus recommended by Fritsch of Breslau. T. G. Thomas in this country in 1884 recommended that the uterus be turned out of the abdomen and incised on the anterior wall. The uterine incision he sutured with deep silver wire or heavy silk interrupted sutures, as Säger had recommended.

This was an innovation upon the previous open uterine incision with thorough drainage into the vagina, or the panhysterectomy of Porro.

P. Müller, at the International Congress of Medical Sciences at Copenhagen, 1884 and 1885, reported cases with longitudinal incision of fundus and also transverse incision at inner os, the latter promoting healing by the normal position of ante flexion.

J. C. Webster, of Montreal, in the *AMERICAN JOURNAL OF OBSTETRICS*, 1901, XLIII, p. 390, reported a longitudinal fundal incision, but removed the uterus after he had delivered the child.

In 1900 Catterina (A.) reported a case with a posterior uterine incision, and in 1901 Kühne (F.) reported a cross or X-shaped incision as making less tension on sutures.

In 1895 A. P. Dudley (AMERICAN JOURNAL OF OBSTETRICS, XXXI, p. 16) advised short abdominal incision, anterior uterine incision and running catgut suture in uterine wound.

Cragin in the *Med. Record* for 1901, LIX, pp. 695-699, describes ten cases, in the last seven of which practically this method was followed. Since that time I know from his assistants and himself that Dr. Cragin has done ten more cases, with only one death of mother in his series. The child mortality I do not know.

Hirst in 1897 gave us the data for the Porro operation, better described as the modern panhysterectomy, to that date.

Six cases of Cesarean section or the Porro operation have been under my immediate care during the last eight years. At the time of labor of one case at the Nursery and Child's Hospital I was out of town, and Dr. Henry D. Nicoll was good enough to operate upon the patient by median abdominal and longitudinal uterine incision. The case was delightfully normal throughout, the child and mother both did remarkably well. Ten months after operation the uterus was not adherent to the anterior abdominal wall. The patient, a negress, a rachitic dwarf, had had two previous craniotomies. One case, the first I had, in 1894, occurred in private practice; after rupture of the uterus. A Porro operation, supra-cervical hysterectomy, was done after a longitudinal uterine incision had freed a dead child. The patient lived five days, but passed only an ounce of urine during that time. The abdomen was soft, no adhesions found by an incomplete autopsy, uterus free.

One case Dr. A. V. S. Lambert did, and I assisted. Transverse fundal incision, primary union, large child, healthy mother, who had had three craniotomies previously. I have assisted at six other Cesarean operations done by other men, in four of which the mothers died and two children; in two recovery of both mother and child occurring. I had not the care of the cases, and the deaths were all due to sepsis. One of the children was anencephalic. Five more cases I have seen after or before operation in consultation.

Of the three cases I did myself, all had live children who did well afterward. One mother had a transverse-fundal incision, did remarkably well and eleven months later had no abdominal adhe-

sions, a movable uterus in good position, and a firm abdominal scar. She is now pregnant again.

Two cases had a longitudinal uterine incision. Both recovered; both had stitch abscesses in the abdominal incision due apparently to my careless preparation of the field.

One case recovered after hysterectomy done on the third day after her Cesarean, for leakage through uterine incision which had given way at its lower end (the sutures had been catgut). As I had seen this same accident in the autopsy of the case of a colleague three weeks previously I was prepared to adopt the radical measure of hysterectomy, and fortunately was successful in its performance.

In 1897 Fritsch of Breslau advised in Cesarean section a transverse incision of the fundus of the uterus from the uterine attachment of one round ligament to the opposite one. Müller of Strasbourg, 1884, advised a longitudinal incision of the fundus, as opposed to the almost universal use of the longitudinal incision of the anterior uterine wall, beneath and parallel to the abdominal incision of entrance.

Fritsch claimed as advantages accruing in his method:

- 1st. Less hemorrhage.
- 2nd. Easier apposition of divided tissues.
- 3rd. Lessened tendency to abdominal hernia.

Müller had said:

4th. Lessened tendency to adhesion of uterus and abdominal wall.

5th. Rapidity of execution.

6th. Lessened liability to strike the placental site.

I would add:

7th. Lessened liability to leakage through uterine wound.

This incision of Fritsch, has been reported in 119 cases in the hands of different operators whose work has been exhaustively reviewed by Curschmann with much physiological, anatomical, and experimental data for and against the incision.

He reaches the conclusion that the incision is usually unnecessary and has the following disadvantages:

1. The abdominal incision is unnecessarily long.
2. The operation is prolonged by that longer incision.
3. In complicated cases the incision cannot be prolonged.
4. If the child's head is low it may be difficult to withdraw it through this incision.

5. The adhesions to the omentum or intestines may be more objectionable than adhesions to the anterior wall.

6. That the wound is not easily reached if secondary operation should by any chance be called for.

7. That these disadvantages more than outweigh the advantages.

He justly states, however, that in certain cases it is a useful variation of an ordinary operative procedure.

Cases. From service of Lying-In Hospital.

I.—Mrs. S., Russian. February, 1902. Had had two craniotomies. Rachitic pelvis. Conjugate vera., 6 c.m., internal pelvimetry. Narrow from side to side. Head of fetus would not enter pelvis at 7th month. Operation of election, two days' preparation of bowels and skin. Membranes unruptured. Abdominal incision 20 c.m. long, half above, half below umbilicus. Uterus turned out of abdomen. Transverse fundal incision. Between uterine ends of Fallopian tubes. Child lived. Weighed 3,800 grms. Turned out of uterus in membranes with placenta. Mother, primary union. Left hospital 23rd day. No adhesions of uterus to intestine apparent; none to abdominal wall. Two months later: Child had pneumonia. Recovered. Mother, washing. No hernia. Infusion began with operation, 500 c.c. Bleeding slight. Placenta on posterior wall of uterus. Uterine contraction very good. Pulse 120 after operation; 100 following day.

II.—Mrs. S., Russian Jewess. August, 1902. Had had three previous craniotomies, one after induction at 7th month. Rachitic dwarf. Conjugate 5 c.m. Three physicians had tried forceps and torn the cervix somewhat when the patient entered the service of the Lying-In Hospital, she having been eight hours in labor. Fetal heart strong and regular. Membranes had ruptured. Preparation of patient hurried. Abdominal incision 23 c.m. long, half above, half below umbilicus. Uterus turned out of abdomen. Longitudinal anterior incision, 10 c.m. long, from fundus to contraction ring below. Child lived. Weighed 3,400 grms. Temperature of mother rose after operation to 103° on third day. Local tenderness over anterior surface of uterus. Third day: Hysterectomy on mother. Lower end of uterine incision gaping, partially adherent to swollen, congested side of omentum. Drainage through vagina, condition very bad. Recovery, with stitch abscess around sutures of hysterectomy. Left hospital 32d day. Soundly healed, no hernia. Infusion during operation. Placenta on anterior wall of uterus. Uterine contrac-

tion very good. Bleeding slight. Pulse 130 after operation; 140 following day.

III.—Mrs. F., Finn. August, 1902. Had had one craniotomy done in Helsingfors; one child after induction at 7th month. Entered hospital at end of 10th month. Had been in labor 12 hours. One doctor had tried forceps. Fetal heart strong and regular. Head of fetus would not enter pelvis. True conjugate 8 c.m. apparently, but great narrowing of pelvic brim laterally. After abdomen was opened it was found that the body of the last lumbar vertebra encroached upon the brim of the pelvis also. Membranes had ruptured. Preparation of patient hurried. Abdominal incision 20 c.m. long, half above, half below umbilicus. Uterus turned out of abdomen. Longitudinal anterior incision 10 c.m. long, through contraction ring. Child lived. Weighed 3,200 grms.; did not do well for long time, but was gaining nicely when woman left hospital. Mother had stitch abscesses on 10th day down to uterine wound. Recovered with strong adhesion to anterior abdominal wall. Left hospital on 45th day; no hernia. Child well. Bleeding considerable. Placenta under site of incision. Uterine contraction poor. Infusion 500 c.c. during operation. Pulse 140 after operation; 130 following day.

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THE SURGICAL TREATMENT OF UTERINE FIBROMA.¹

BY

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IN the fifteen minutes which your chairman has allotted to my division of to-night's discussion I do not propose to go over all of the many surgical procedures which have been advised and employed at one time or another in the treatment of fibroma of the uterus, but will speak only of those measures which my own experience has shown to be of value.

Uterine fibroids we know to be exceedingly common. Many women have them for years without symptoms, so that they may only be discovered accidentally. On the other hand, they may cause most serious disturbance. Could they all be removed without risk to life the surgical indications for their ablation would always be clear, but as there is a definite mortality radical surgical measures are only indicated when the tumor is the cause of persistent hemorrhage, persistent pain or other pressure symptom, when complicated by serious ovarian or tubal disease, and occasionally because of the worry caused to a nervous patient by the knowledge of its presence.

The treatment may be palliative or radical.

Setting aside ligation of the uterine or ovarian arteries or castration, palliative treatment is practically covered by curettage, which is useful in controlling metrorrhagia in patients with small tumors near the menopause. It may have to be repeated several times at intervals of four to six months and is only efficient when the cavity of the uterus is of such a shape that all of its surface can be safely reached by the curette.

Radical measures include vaginal or abdominal removal of the tumors and often of the entire uterus.

The vaginal operation is indicated when the tumor is situated in the cervical region. Fibroids in this location are rather rare and

¹Part of a discussion before the Obstetrical Section of the New York Academy of Medicine, January 22, 1903.

can often be removed by simple incision of their capsule and enucleation. Intra-uterine fibroid polyps when small may be removed through the dilated cervix. When too large for this they may be reached by making a transverse or I-shaped incision through the vaginal mucosa in front of the cervix, separating the bladder from the uterus and dividing the anterior uterine wall to any extent that may be necessary by a median longitudinal incision. This incision is followed by very little hemorrhage and gives free access to any part of the cavity of the uterus. Even very large submucous or pediculated intra-uterine tumors may be removed by this route by morcellation, that is, by cutting away with stout scissors or the knife the presenting portion of the tumor, dragging a fresh portion into reach by strong traction forceps, cutting this away and repeating the process until the whole tumor is removed. The wound in the anterior uterine and vaginal wall is then carefully closed with interrupted catgut sutures and any hemorrhage controlled by a packing of sterile gauze placed in the uterus and vagina. This method is only to be recommended when we can assure ourselves that the uterine appendages are not seriously diseased. The presence of pus tubes is a strong contra-indication and would necessitate a vaginal hysterectomy. Vaginal hysterectomy may also be indicated when there are many small interstitial myomata. In larger tumors or tumor masses I prefer the abdominal route. When operating through the vagina one must always be prepared and ready for abdominal section which may at any time be necessitated by unexpected difficulties. Before, during and after the vaginal operations the most scrupulous asepsis must be observed. The gauze packing is to be removed on the third day and the vagina afterwards irrigated every eight hours with a sterile saturated boric acid solution. The mortality after this operation should be almost nothing if we could always prevent infection. Yet vaginal hysterectomy in my hands has given a much greater mortality than have the supra-vaginal operations.

All interstitial or subperitoneal fibroids larger than $3\frac{1}{2}$ inches in diameter are best reached through an abdominal incision.

The ideal abdominal operation is myomectomy. Unfortunately it can only be employed with pedunculated subperitoneal tumors and occasionally where with a limited number of small fibroid nodules it is, as in young women desiring the possibility of children, of great importance to preserve the uterus. The capsule over each tumor is incised, the tumor enucleated, the redundant

edges of the capsule removed and the wounds closed by deep catgut sutures. When the wounds left after enucleation are large so that there is difficulty in securing accurate and complete closure, or when drainage is required, the danger of the operation equals and often exceeds that of hysterectomy. In many instances when myomectomy has been employed small fibroids, overlooked and left behind, have grown and necessitated a radical operation later.

The operation of hysterectomy is always formidable, and as conditions may arise at any time which tax the resources and nerve of the most skilled, and where hesitation or lack of expedient may mean the immediate death of the patient, it should not be undertaken without an adequate practical knowledge both of aseptic surgical technique as applied to abdominal surgery and of the anatomy of the pelvic contents, particularly of the relations of the bladder, ureters, rectum, uterine and ovarian arteries, and large venous trunks.

The patient is prepared as for any abdominal operation; the intestines are thoroughly emptied; for several days she is encouraged to drink water freely; the skin of the abdomen is carefully disinfected, the vulva and vagina are cleansed and packed with 1 to 2,000 bichloride gauze for two days, the gauze being changed every eight hours and the limbs covered with cotton and a bandage to prevent chilling of the surface during the operation.

The instruments needed are: Two scalpels, two pairs of strong blunt-pointed scissors, two anatomical forceps, six traction forceps, twelve short hemostatic forceps, eight long clamp forceps, pedicle needle, retractors, long and small-curved needles, slightly chromicized catgut Nos. 1, 2.

The patient is put in the Trendelenberg position. The abdomen is opened by a median incision beginning half an inch above the pubes and extending upward, as far as may be necessary to allow the delivery of the tumor. In making this incision care must be taken not to injure the bladder which sometimes is drawn high up. Remembering that any injury to the capsule of fibroids will cause free and troublesome bleeding, adhesions are carefully detached, slight ones being wiped free by a bit of gauze and firmer ones divided between two ligatures. Dense adhesions to intestine may require that small areas be detached from the surface of the tumor. The tumor being freed from adhesions is lifted up and out of the abdominal cavity. Large flat gauze pads with strings attached are wrung out of hot sterile salt solution and placed so as to protect and cover the intestines. The finger is passed under the

broad ligament on the more accessible side, and, guided by it, the pedicle needle, threaded with a long, strong ligature, is passed through a portion free from veins, so as to include the ovarian artery. This ligature is then firmly tied and occludes the artery and the adjacent large venous trunks. The ovary is to be left outside the ligature, unless it is so diseased that its removal is desirable. A second bite with the same ligature ties off the round ligament. A long clamp is now placed so as to control the vessels on the uterine side and the tissues between clamp and ligature are divided with the scissors. If the ovarian artery on the other side is easily accessible, it is tied in the same way. Careful inspection of the anterior surface of the uterus will now determine the upper limit of the bladder, and a transverse incision, through the perineum only, is made a third of an inch above this point, running from the lower edge of the cut in the broad ligament across the uterus to a corresponding point on the other side. The bladder is freed from the uterus by being carefully wiped down with a piece of gauze held by fingers or forceps. The uterine artery is now exposed, and a finger passed down by the side of the cervix can feel its pulsation. This artery is to be carefully ligated on one side and then on the other, *close* to the side of the cervix, the pedicle needle being passed forward and not outward, so as to avoid the ureter. The cervix is then divided and the uterus and tumor are removed.

When the operator has attained confidence in his technique, the procedure is greatly simplified, especially in difficult cases, by first securing the ovarian and round ligament arteries on the more easily accessible side, freeing the bladder, securing the uterine vessel, cutting freely across the cervix until its tissue is nearly divided, and catching the lower portion of the cervix with traction forceps so as to have it under control in case of unexpected hemorrhage. Then tearing carefully the last fibres of the cervix, the operator will see the remaining uterine artery arching across the torn space. After this has been clamped or ligated, and the remainder of the broad ligament has also been clamped, the tumor is removed. All bleeding points having been secured by ligatures the anterior and posterior peritoneal edges of the pelvic wound are carefully brought together, so as to cover in all raw surfaces and leave finally only a seam across the pelvis. The abdomen is then closed.

When it is considered best to remove the entire cervix, after securing the arteries by ligature or clamp, the uterus or the cer-

vical stump is drawn away from the vagina and the dissection is carried down by scissors, keeping close to the cervix so as even to leave a slight ring of its tissue in place. When the cervico-vaginal junction is reached the scissors are pushed through into the vagina and with this opening for a guide the remaining tissues are easily divided. All bleeding points having been secured, a piece of sterile gauze is pushed down into the vagina so that the upper part comes just above the cut vaginal edges, and the peritoneal edges are drawn together and sewed so as to close off the peritoneal cavity as in the supra-vaginal operation. The gauze drain is left in place two to six days, being pulled down a half-inch or so every day after the second.

In certain instances, especially when there are inflammatory disease of the appendages and extensive adhesions so that the tumor masses are fixed in the pelvis and the vessels covered in out of reach, it becomes necessary to incise the uterus anteriorly, always keeping strictly in the middle line, and rapidly to enucleate the tumor or tumors. The uterus then being collapsed and its relations easily recognized, the vessels can be secured and the operation completed.

Very large subperitoneal tumors under the vesical peritoneum, or in the broad ligament, are often best removed by a bisection of the tumor, as this allows the tumor to roll up and out on to the surface with the least handling and injury to its cellular investment.

In two instances I have successfully employed a method first described by Kelly, who, in a case of fibroid reaching the umbilicus and with extreme adhesions to the colon and adjacent structures, first dissected the bladder from the cervix, then cut cautiously through the cervix transversely, tearing the last few fibres on each side, and as the uterine vessels came into reach clamped them with short-jawed forceps, compressed the vessels and cervix above the incision with long-jawed forceps, cut the vessels, and as the tissues could be pulled into reach after the cervix was loosened, secured the vessels up to the upper edge of the broad ligament, dealing with the adhesions to the colon after the mass had been entirely freed from below and lifted out of the abdomen.

After-Treatment.—After an abdominal hysterectomy, before the patient is taken off the table, and while still under the influence of the anesthetic, a high enema of a pint of decinormal salt solution is introduced into the rectum, and if there is shock this is repeated every three to six hours. Nothing is to be given by

mouth for six or eight hours, and then hot water in half-ounce doses with ten drops of lemon juice added is allowed every hour. Should there be persistent nausea it is often wise to give water freely for a time so that the patient by vomiting can wash out her stomach. If the stomach will retain it, half-ounce doses of hot broth or hot milk may be given at hour intervals. If the case progresses favorably it is not necessary to begin to move the bowels until the end of forty-eight hours; but if there is evidence of intestinal distention, salines should be started as soon as twelve hours after the operation. Many good operators give calomel or a saline an hour before the beginning of the anesthetic. Rubinat or Apenta water in half-ounce doses followed by a half-ounce of cool water, or drachm doses of Rochelle salts are to be given every hour for four to six hours. Three hours after the last dose an enema of an ounce of glycerin and eight ounces of water is given. In desperate cases with dangerous and increasing distention the author has seen brilliant results follow the high enema recommended by Hardon of an ounce of alum in a quart of hot water. Strychnine is often useful in one-fortieth to one-twentieth grain doses hypodermically. After the bowels have moved freely and when there is no distention, the food is to be cautiously increased, and the patient gets the treatment employed after abdominal operations in general. She can usually be allowed to move about and lie on the back or side, as she may prefer. The urine is to be passed naturally if possible, but often has to be drawn for a few days by catheter. The catheter should be used for three days when it has been necessary to drain through the vagina.

The *complications* peculiar to the operation, met with during and after abdominal or vaginal hysterectomies, are mainly due to injuries to ureters, bladder, or intestine. The main causes of death are hemorrhage or sepsis, leading to fatal exhaustion or general peritoneal inflammation with intestinal atony. The statistics of mortality vary greatly, but in general, in the hands of properly skilled operators, it varies between three and eight per cent.

Observations of Broun and others seem to prove that the chances of a secondary infection, possibly of a fatal character, are slightly less when the entire cervix has been removed, but in my hands the supra-vaginal operation has undoubtedly given the smoothest convalescence and the most satisfactory final result. I attribute my good results after leaving in the cervix, first, to its division low down, as near the vaginal junction as possible; second.

to non-interference with the cervical canal; and third, to the avoidance of sutures in the cervical stump, the anterior and posterior peritoneal edges only being stitched together. Drainage is only used when it is impossible to cover large denuded areas or satisfactorily close wounds extending deep into the lower and lateral regions of the pelvis. I have performed to the present time one hundred and six hysterectomies for the removal of fibroids with four deaths. In eleven of these cases vaginal hysterectomy was done with two deaths, and in ninety-five abdominal hysterectomy with two deaths. These four deaths were all from sepsis.

34 WEST 45TH STREET.

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Stated Meeting, February 19, 1903.

The President, CHARLES S. BACON, M.D., in the Chair.

REMARKS BY THE PRESIDENT ON MAX SAENGER AND HENRI VARNIER.

Since the last meeting of the Society, the medical world, and gynecology in particular, has sustained a great loss through the deaths of two colleagues of great eminence—Max Saenger, of Prague, and Henri Varnier, of Paris. We especially are sadly interested in Saenger, who has been for many years one of the Honorary Fellows of this Society, and was personally known to very many of our Fellows. Saenger was still a young man when he died. He was born in 1853; studied medicine in Würzburg and Leipsic. In Leipsic he received his degree, in 1876. From 1876 to 1878 he was assistant in pathology. In 1878 he became assistant to Crèdè. In 1881 he became privat-docent, and at that time presented the first of his papers on Cesarean section, which, as you are aware, were epoch-making. From 1884 to 1887 he was operator at the clinic, a place created especially for him. Crèdè at that time was getting old and infirm, and this position was created for Saenger. After that he erected his own private hospital, which many of us have seen, and in which he did a great deal of his work.

In 1899 he went to Prague, and in less than a year he became sick with the trouble that finally caused his death a few weeks ago.

The amount of work that was done by this man in this period

of twenty years was something enormous. There are hardly any important problems in obstetrics and gynecology that were not considered by him in some of his papers, and, as we know, they were treated always in a way that led to elucidation and to decided development.

As an operator, he was careful, judicious. As a teacher, he was very inspiring. As a friend, he was sacrificing and true. As a companion, he was witty, genial, and everyone who was brought in personal association with him recognized him as a great man, and one whose loss we now deeply deplore.

Varnier was a still younger man. He was born in 1859; entered the Medical School in Paris, and was stimulated to study obstetrics, as we are told, from the fact that his mother died in childbirth. In 1882 he became interne in the Clinic, associated in that way with Professor Pinard, with whom he afterwards worked. He was appointed Professor, I believe, in 1888, and for many years (fourteen years since his activity in medicine) has produced many works, both in periodical literature and in treatises on obstetrics. Personally, he was a very amiable man, loved by his friends and his students.

It seems to me fitting that we should express our sad appreciation of the loss that we all personally sustain in the death of these two men.

DEPRESSED FRACTURE OF THE SKULL.

DR. JOSEPH B. DE LEE.—I have two specimens taken from patients delivered within the last ten days. One, an infant, presents a depressed fracture of the skull which was produced by exaggerated uterine action. Over the right ear you will see a so-called spoon-shaped depression of the skull, which was produced by the uterus forcing the child's head against the promontory of an osteomalacic or pseudo-osteomalacic pelvis. I say either one or the other, because the patient, being an Italian, I could not obtain a word of information, so I cannot tell whether it was an acute or an old condition. The pelvis is typical. The fracture as presented is only about one-half an inch deep. The infant has been used at the College on the manikin, and various operations have been done with it by the students, such as version and forceps operations, and in this way the depression has been pressed out, to some extent.

The woman from whom this specimen was removed is an Italian who has had six deliveries, and each successive delivery was more difficult than the rest. The first three deliveries were normal; the two subsequent were instrumental. Some of the children lived, some died, which ones I cannot determine. She had been in labor when I saw her, for nearly forty-eight hours. The bag of waters had ruptured twenty-eight hours before, and for the last six hours pains were almost continuous and powerful, so that the uterus began to threaten rupture.

The external pelvic measurements showed a diminution of all the diameters. Internal examination under an anesthetic showed that the rami of the pubes came close together like a snout. The descending rami were close together, and looked as though it were impossible to introduce two fingers between them. The head was pressed down hard against the pelvis and, as you see, there was a depression made by the promontory into the fetal head. The child was not in good condition. The heart tones were very faint, and internally we found the cord pulsating a hundred a minute. As the head became extremely movable when the patient was deeply narcotized, I performed version in the hope that I could bring the head down, to wriggle it, as I thought, through the pelvis. The extraction, however, was much more difficult than I anticipated, and the head was lodged firmly at the inlet. During attempts to bring the head down, which lasted eight or ten minutes, the child succumbed. Craniotomy was performed through the roof of the mouth, and the child was delivered. It required continual effort for fifteen minutes to bring the head through. Examination afterwards showed a conjugata diagonalis of $11\frac{1}{2}$ centimeters, but owing to the fact that the anterior half of the pelvis was useless for labor, the actual conjugate could not have been more than 6 or $6\frac{1}{2}$ centimeters. The woman made a perfect recovery. I shall study her case more thoroughly and make a fuller report later.

PORRO OPERATION.

The second specimen is one of exceeding interest. The patient from whom this specimen was removed is a rachitic dwarf. She stands four feet six inches in height, was born in Germany, and gives a classical history of rickets. She learned to walk early, but at the age of two years, she forgot how to walk, and simply crept around. She was in bed for some time. She has the square head, the rachitic rosary; the enlargement of the epiphyses; the bowing out of the thighs; the S-shaped tibia and fibula, and the ideal rachitic pelvis. The interspinous diameter is 26.1 cm.; intercristous, 24.5 cm.; Baudelocque's diameter is 18 cm.; trochanters are 29 cm. The diagonal conjugate is 8 cm. The conjugata vera is estimated at 6 or possibly 7 cm. The sacrum projects sharply into the pelvis, is convex from side to side, and convex from above downward to the coccyx; the lower portion of the sacrum projects sharply into the pelvis as if bent with forceps. The child was not large. It weighed about six pounds. It lay right occipito-anterior. Heart tones were good before operation. The woman had been in labor only a few hours. The bag of waters ruptured at midnight. I saw her the following noon. Her temperature at that time was 100; pulse 100. The indications were clear for Cesarean section, and nothing else would have been considered had it not been for a very unhealthy discharge which the patient had. The vagina was rough, like a nutmeg grater. This roughness ex-

tended deeply into the fornices. With the finger inserted the mucous membrane here would open in folds an inch deep, and in addition to that the finger would penetrate the mucosa, showing how boggy and succulent the structure was. It would have been an easy matter to have punctured the mucous membrane by the pressure of the finger alone. The discharge was greenish-yellow, mucoid and purulent, and had an odor. According to the bacteriological report which I received to-night, the discharge contained a pure culture of a diplococcus. The bacteriologist does not think there were any gonococci in the discharge. In addition, there were numerous bacilli, but he could not determine the presence of any streptococci or staphylococci. This case will be worked up more thoroughly, and I will present a more careful bacteriological report.

In the presence of this granular vaginitis, the question of conservative Cesarean section became a serious one. Cesarean section is not a favorable operation in cases of infection, especially of the gonorrheal type. The question lay between Cesarean section,—and if Cesarean section, extirpation of the uterus,—and craniotomy. We selected the Porro. Dr. Watkins and I did the operation together. I delivered the child, and then, while I was re-sterilizing my hands, Dr. Watkins went ahead with the extirpation of the uterus.

The extirpation of the uterus was typical.

There is a point I wish to bring out in reference to the physiology of the third stage of labor. We could see the contraction of the placental site through the peritoneum on the back part of the uterus, and the placenta was bunched up inside the uterus. It remained adherent at the edge as Ahfeld describes it, and inside the placenta evidently there was a blood clot. It was being expelled with the cord in advance. This demonstration proves the theory that the placenta is separated by the contraction of the uterus, and that it is separated first at the middle of the area of insertion.

The patient made a very fine recovery. The baby weighed five and a half pounds and is doing nicely, although it had a temperature of 104° for thirty-six hours. After its bowels were cleaned out, the pulse and temperature went down.

HEART FROM A CASE OF CYANOSIS NEONATORUM.

DR. HENRY F. LEWIS.—I have here the heart of a new-born child, a "blue baby," which is interesting. The child was the fourth the mother has had. The others were normal. There is no history of disease on either side. The child was born normally; labor was short, three or four hours only. The child breathed well at birth and cried lustily, but died in about six hours with symptoms of grave dyspnea. The heart sounds were normal during labor and there were no murmurs or abnormal sounds heard afterwards. The respiratory sounds were well heard over all areas of the lung. The heart itself is not abnormal; it is not hypertrophied.

The child was emaciated, although apparently born at full term. There is considerable hypertrophy of the ductus arteriosus and a persistent patency of it. In fact, there was so much hypertrophy of the ductus arteriosus that it practically becomes the descending aorta. I have little sticks stuck through different parts of the enlarged vessels, so that you will see the aorta, the subclavian and carotid on the right side; also the carotid and subclavian of the left side running off from the aorta. The true arch of the aorta is very small in comparison with the ductus arteriosus. There seems to be nothing left of it but a narrow tube connecting with the ductus arteriosus to form the main trunk of the descending aorta. The foramen ovale was open. The lungs, on autopsy, showed that they were not atelectatic. Small pieces would float, although there was marked passive congestion throughout. There were numerous emphysematous areas along the anterior borders of both lungs. There was emphysema of the connective tissue of the anterior mediastinum and about the thymus.

DR. HUGO EHRENFEST, of St. Louis, Missouri, by invitation, read a paper entitled

A METHOD OF DETERMINING THE INTERNAL DIMENSIONS, CONFIGURATION AND INCLINATION OF THE FEMALE PELVIS.¹

DR. RUDOLPH W. HOLMES.—I saw this instrument used in Vienna three times for clinical purposes, and then Dr. Neumann himself demonstrated the apparatus to me on a case for the purpose of instructing me how to use it. In each one of the cases in which this instrument was used, manual estimation of the size of the conjugate was made by various men, and in some of them the Skutsch method was used. Repeatedly, the conjugate was taken by the pelvigraph, and the results were approximately the same. There were considerable divergences in the estimations made by the Baudelocque method with the finger. Of course, the pelvis must be contracted to get effective results by the use of the pelvigraph, because the finger must be able to reach the promontory to approximate accurately the end of one of the arms. In Vienna, before I saw the instrument used, I was rather skeptical as to whether one could get the patient to lie quiet enough to take these measurements, but they succeeded in doing it. As yet, I have not used it in this country. I expected to have had two cases for demonstration, but the apparatus was not brought to me until today, so Dr. Ehrenfest and I had to defer taking pelvigraphic measurements on American women. If it can be done on patients in Vienna we ought to be able to use enough moral suasion to get our women to keep quiet, so we may use the instrument successfully. If the necessity should arise one should not hesitate in using anesthesia. If for no other reason, the pelvigraph ought to have a place for teaching purposes. If the teacher will use this instrument in appropriate case before a class demonstration he can show

¹See original article, page 577.

to the students the salient features of the pelvis under consideration better than by any description. I believe there is about one millimeter, or perhaps a millimeter and a half difference between two of the arms of this instrument before you: this error can easily be rectified by filing. I made four measurements with the instrument on the Edgar pelvis before you, and the pelvigraph gave more exact results than the steel tape or even the Gohmann pelvimeter. With reference to the Kliseometer, there is no question but what it is going to be of value in clinical obstetrics. Frequently we see statements that this much must be added to or deducted from the figure used to subtract from the conjugata diagonalis to obtain the vera for each degree of deviation in the inclination of the pelvis: since there have been, heretofore, no means of getting the inclination of the pelvis on the living with any accuracy the statements are preposterous. This is the first instrument for this purpose which is worthy of any consideration: Drs. Neumann and Ehrenfest are entitled to great credit for devising an addition to our armamentarium.

I think Dr. Ehrenfest made a mistake in the title of his paper. He calls it "A Method of Determining the Internal Dimensions, Configuration, and Inclination of the Female Pelvis." I think it should read, "A New Method," etc.

From the time of Contouly and G. W. Stein, who were the first ones to estimate the conjugate by mechanical means, which was in 1778, down to the present, this principle of the pelvigraph never was applied, and so it is an entirely new one. Considering the well-known geometrical and mathematical facts upon which these two instruments are founded, it is surprising that they were never used before. Dr. Ehrenfest has talked with a mechanical engineer, who said to him that the principles of the pelvigraph had never been used for mechanical engineering purposes. I believe these instruments are going to have a field in obstetrics. The only possible objection I can see is the occasional necessity of anesthetizing a woman to make the measurements. The woman has got to be stoical, absolutely quiet for a few minutes, because the slightest deviation means entire obliteration of all points taken thus far, and the obstetrician will have to start over again.

DR. JOSEPH B. DE LEE.—I would like to ask Dr. Ehrenfest if, in his experiments, he thought of using the principle of the pantograph in demonstrating the outlines of the interior of the pelvis? Professor Hall, of the Northwestern University Medical School, has invented a sort of pantograph, which takes the place of the cyrtometer, an instrument to take the outlines of the chest. This pantograph gives accurately not only the outline, but the size of the chest.

I agree with Dr. Holmes that this instrument has a place in obstetrics, particularly for class demonstration. However, the more a man educates his fingers in obstetrics, the less use he has for instruments, especially those as complicated as this seems to be, and expensive.

DR. EMIL RIES.—I would like to ask two questions. First, Is the instrument sufficiently accurate to show differences in the true conjugate in the Walcher position and with the legs flexed? Second, If there is a difference which can be demonstrated, by the pelvograph, that difference, of course, is dependent upon the change of the angle which the sacrum makes with the symphysis. As I understand from the photographs, the measurements at first, which constitute the outline of the pelvis, are taken with the legs flexed on the table. Afterwards, the inclination of the pelvic outlet is taken with the legs straight, the patient standing up, almost in the Walcher position, although not quite. Does not that constitute a change in the angles?

DR. FRANK E. PIERCE.—I saw the instrument used and demonstrated in Vienna by one of the assistants of Professor Schauta, and while it is practical and accurate, still when it comes to the examination of a living patient, if the patient moves slightly, the measurements are largely effaced. I saw three or four measurements taken of one patient, and each time the patient moved slightly, thus interfering with the accuracy of the measurements. Dr. Ehrenfest mentioned that objection, namely, that it is difficult to get accurate measurements if the patient moves slightly. I cannot see how strictly accurate measurements can be made in most cases without anesthesia, and while we may get drawings which seem accurate, if we compare several, noticing the points of the instrument repeatedly, we will find that the patient is inclined to shrink slightly, and in doing so we will get a deviation of one or two millimeters at least in the diameters. Dr. Holmes has had the privilege of seeing more accurate demonstrations than I, but that has been my experience in seeing the instrument used.

DR. RUDOLPH W. HOLMES.—If there is only a difference of one or two millimeters in the results obtained by this instrument it is not a valid argument against it, because two men in estimating the conjugata diagonalis will vary, even the same man will obtain different findings in repeated examinations. Perhaps one will be one or two centimeters off from the measurements of the other; one may say there is a normal pelvis, when actual contractions are present. I have seen this happen where there was a markedly contracted pelvis.

The remarks of Dr. Ries are pertinent. For scientific purposes it is desirable to find the inclination of the pelvis in the erect position. In the parturient woman our chief interest is in knowing the influence of posture on the inclination of the pelvis, and more particularly the variations in the inclination and length of the conjugata vera in changing from the lithotomy, to the full recumbent, and eventually the Walcher postures. By the use of the Pelviograph and Kliseometer in these postures we will get correct data while at present our knowledge is only of relative value. By having a table with a proper opening in its top under the lumbo-sacral junction of the woman I am sure we could find a practical application for the Kliseometer.

DR. CHARLES S. BACON.—At one time I made efforts to obtain transverse measurements by the Skutsch method, and found the task exceedingly difficult. It was done without an anesthetic. I do not think there would be any objection in practical cases, where measurements were desirable, to give an anesthetic. We should have no hesitation in doubtful cases, where it is necessary to determine with accuracy whether an obstetric operation should be done or not, and in a patient who is anxious to have a child it would be quite justifiable to produce complete anesthesia. I should like to know what would be the element of error, even in cases of complete anesthesia, on account of slight movements of the patient, and whether, with complete anesthesia, this method is a practical one for clinical use. That it is of value for teaching purposes there can be no doubt.

DR. EHRENFEST.—The principle of the pantograph was the first thing we tried to apply. We did not find it practical, because the pantograph must be fixed to the draughting board, and it is impossible to utilize for such purposes within the vagina of a patient, an instrument that cannot be moved freely.

There is a difference in the diagrams in the lithotomy and Walcher positions. We can determine the differences with the instrument. I acknowledge that there is an element of error in using the angle of inclination, taken with the woman in the right position, for the diagram made with the woman lying down, the error certainly is a small one. The rotation of the sacrum may be noteworthy as regards the length of the conjugate, but it will make very little difference as regards the inclination of the conjugate of the outlet. The inclination may become a little larger. Since, of course, we measure the inclination only on skin points that are slightly movable and do not permit of mathematical exactness, I do not think that the error involved in the change of position will lessen the practical value of such a measurement of the pelvic inclination.

The pelvigraph is so constructed that it will give exact measurements, from a mathematical standpoint, but since we have to deal in the living patient with soft, compressible tissues, exact instruments will always give a difference of a few millimeters in repeated measurements, according to the degree of pressure which is used to attach the instrument to the sacrum or symphysis.

You will be surprised to see with what accuracy you can get measurements of the true conjugate. I will state positively that by careful manipulation this can be done without any danger of movement of the patient. It is easy to repeat the measurements if the patient should move. You can make several in a few minutes. I had reference in my paper more particularly to measurements. If we take an entire tracing of a pelvis, the possibility of slight movement of the patient and inaccuracy from that cause increases. However, that is not of such great importance, because the whole tracing is of value only for clinical purposes, and even if there is an error of a few millimeters in some dimension.

the character of the formation of the pelvis will always be expressed in the tracing.

DR. BACON.—Can transverse measurements be taken as easily by this instrument?

DR. EHRENFEST.—As regards transverse measurements of the the pelvic inlet, I do not think they can be made any easier than by the Skutsch method, because the greatest difficulty is to determine and reach the appropriate points. If they are well determined and easily reached, then the pelvigraph will permit an exact measurement of their distance.

The instrument has been carefully thought out, and is so constructed as to be used by one who examines with the left hand as well as by one who examines with the right hand. There are three little legs attached to the instrument, which permit of obtaining exact parallelism between the median vertical plane of the pelvis and the surface of the draughting board, in this way excluding the possibility of an error.

DIFFICULT VERSION.

DR. JOSEPH B. DE LEE.—The last case which I wish to bring to the notice of the Society this evening is one which shows that the hand is a very useful instrument in obstetrics, and one which I believe has been very much neglected. The patient, in the service of the Lying-in Hospital Dispensary, got in labor about three and a half weeks ago. She was a Lithuanian Catholic, thirty years of age, married, with a flat, rachitic pelvis. She had had three labors before this, all three having been terminated by operative means, and in all of which the child died during the operation. As the result of the various operations, the parts were very much lacerated. The cervix was torn in several directions, and there were scars in the vagina. These did not interfere with the dilatability or size of the passage.

Labor began twelve hours before I saw the patient. On my arrival, the cervix was completed dilated and effaced. The interne reported a face presentation, with prolapse of the arm. It was, in fact, a mento-dextro-posterior, with prolapse of the arm complete. The hand was almost visible at the vulva. I do not know the external measurements. The conjugata vera, I estimated at eight and a half or perhaps nine centimeters. In view of the fact that all the children previously born had died, and the woman had made no preparation, it was expected that the child would be removed by some mutilating operation. On examination, it was found the child was still alive, and the uterus had stretched, so that the contraction ring was almost above the navel. On making an internal examination, we found posteriorly the contraction ring was higher than it was anteriorly. Alongside the arm the cord had prolapsed, pulsating quite vigorously, but not rapidly. It was a typical face presentation. We estimated the child to weigh about

seven and one-half pounds, which proved to be a fact. The case now had to be carefully considered, whether to do a high forceps, or version and extraction, or changing the face to an occipital. The high forceps operation, with prolapse of the arm, and partial prolapse of the cord, with mento-dextro posterior and the head not engaged, presented a very sad outlook for a living baby. Version and extraction were contraindicated; by the condition of the uterus, it was almost on the point of rupture. The bag of waters had ruptured twelve hours before. I nevertheless essayed version, although it was dangerous; although the contraction ring was high, and the lower uterine segment was on the point of rupture, I felt I could by careful manipulation bring the breech down and complete version without rupturing the uterus. Finally, if there was too great danger of rupture, I was determined to do a craniotomy and deliver the child in that way. It was a right position; the chin was on the right side behind, and the arm alongside of it. I went into the uterus with the left hand, and without much difficulty brought down the foot. I found, however, when I attempted to bring down the foot and push the head upward, instead of slipping above the contraction ring the head would belly up into the left parametrium beneath the ring. I gave up version, and replaced the foot by the hand, which was done as easily as it was brought down. The cord now had prolapsed further, and was getting weak in its pulsation. I pushed the cord out of the way up under the leg which I had brought down, and immediately noticed an improvement in the pulsation of the baby's heart, which was under my hand. Then I used Thorn's method of changing the face to an occipital presentation, which, you remember, consists of three motions. The chin and face are pushed up; the occiput is pulled down, and the shoulder is pulled to the side by an assistant in order to straighten the S-shaped spinal column. The first attempt at Thorn's method did not succeed. In order to get space, I replaced the arm; I pushed the arm up with the hand, folded it across the chest where it belonged, then tried Thorn's method again. This time it was successful, and I brought the head down over the pelvis; it entered the pelvis with a large segment. During these manipulations the cord prolapsed, and the heart tones almost disappeared. I then rapidly applied the axis-traction forceps, and as soon as the head was pulled into the pelvis, instead of rotating to the front, the occiput rotated to the rear, and I extracted the asphyxiated child, which survived. The ease with which under deep narcosis the various manipulations were performed was striking, and although I have used the hand in just as complicated maneuvers before, it seems to me, from my experience, that the hand has a much more extensive field in obstetrics than is commonly supposed. I feel that in posterior positions of the occiput, before engagement, the hand can be used more frequently to bring the occiput into a good position, than has been recommended. I would emphasize, therefore, the importance of the recognition of the use of the hand.

After the operation was completed, the child delivered and resuscitated, the woman began to bleed, but not seriously. I suspected a post-partum hemorrhage from a rupture of the uterus, and made a careful examination. I found that there was a slight tear of the lower uterine segment. This tear was very peculiar. It was underneath the contraction ring, on the left side, where I said I had pushed the head up. In order to prevent any further hemorrhage from the laceration, I packed the uterus, lower uterine segment and vagina full of gauze; put my hands on the outside of the uterus for five minutes, held the uterus tight through the abdominal wall, in the hope that I might produce coagulation of the blood in the vessels, afterwards applying strong compression. The woman recovered without any untoward symptoms.

DR. DAVIS.—I have relied on the use of the hand in obstetric work for many years. I believe, as Dr. De Lee has said, the hand is neglected many times when it could be used. It is my belief that if this case had been seen early enough, version could have been done safely, and that there would not have been any tear of the lower uterine segment.

DR. EMIL RIES.—I was much interested in the case mentioned by Dr. De Lee, and particularly in his discovery of a comparatively insignificant tear by examining the case after labor. This is one of those cases where the labor was apparently uncomplicated, and yet suddenly a rupture takes place without instrumentation, without undue manipulation, and at first the rupture appears inexplicable. If Dr. De Lee had not examined this woman after labor and had not found this tear, and the woman had gone on and developed a complete rupture of the uterus in the next labor, it would have been a great question as to how such a tear could have come about. After such a tear in the uterus, we have more or less insufficiency in the muscular wall, and a predisposition to future rupture. This predisposition to rupture has been dwelt upon, and anatomical investigations regarding these ruptures have been unsatisfactory. But, it seems to me, in just such examinations as this we have a very valuable pointer as to the origin of these so-called spontaneous ruptures. I have had occasion to examine a number of women after labor, who have been delivered with instruments or by manipulation, or where the labor had been normal, and I have been astonished to find how frequently there were tears in the cervix which appeared like fistulous tracts extending up into the uterus, apparently in an oblique direction, so that one would expect some instrument had been introduced from below upwards. That is what Dr. De Lee suspected in his case. He thought of the possibility of having injured the uterine wall with his forceps, producing thereby a tear extending from below inward to above and outward in the uterine tissue. It is not necessary that such a tear should be produced by an instrument. It is possible that such a tear, on account of the distended condition, before retroaction sets in, is perfectly straight in the uterine wall, and becomes apparently oblique and points upwards and outwards only

by the retraction of the uterine tissue. In medico-legal cases that has been repeatedly a question which has led to difficult interrogations of the obstetrician and of experts in the case. I do not hesitate to say that it is impossible to state, from the direction of the tear alone, whether it is due to instrumentation, or simply a tear straight into the uterine tissue itself, which has changed its shape by the retraction of the uterine muscle. We observe the same condition in the vagina without any instrumentation. If you examine a woman immediately after labor, you will find tears in the vagina which extend straight down into the surrounding tissue, and which are not at all fistulous-like. You wait until the puerperium is six or eight days old, you examine again, and you may find a tear which extends in a slanting direction outwards and upwards toward the spine of the ischium. The same thing obtains in regard to tears of the perineum, which look entirely different after labor than they do six months afterwards, a matter which should be considered more in the repair of these tears than is usually done.

The uterine muscle in its configuration and mechanism is still very much of a riddle, in spite of the extensive work of Bayer and others, who have tried to trace the individual muscles. It would be desirable to have a clear understanding of the arrangement of the uterine muscle, so that we could differentiate between the various structures, find one muscle pulling straight up or down and one pulling in a circular direction, and so on, and if we had a distinct and clear diagram of the uterine muscle, we might come to a better understanding of such tears. But so far we have not reached a complete understanding.

This summer, while in Europe, I saw some work done in the clinic of Werth, in Kiel, where they have been cutting uteri of various ages in pregnant and non-pregnant women, young and old, and have traced the uterine muscle section by section, trying to build up a complete uterus by the sections, thereby isolating and differentiating the muscle bundles and their various functions. Of course, you understand at once, if you look at a section of the uterus, what an enormous amount of work that implies. I have had the good fortune of seeing Professor Bayer at work. He has made complete sections of the entire uterus, in pregnant and non-pregnant women, and has carried on this work for a great many years. In spite of this enormous amount of work we are still very far from arriving at a thorough understanding. We are familiar with the work done by His on the muscle bundles, and their arrangement in connection with the heart. A good deal depends upon the arrangement of the muscle fibers. At first, a pictorial representation of the heart muscle may seem just as difficult and complicated as the representation of the uterine muscle; but His has been able to work out a certain diagrammatic representation of the heart muscle which makes the heart muscle appear much simpler in its architecture than the uterine muscle. Of course, the heart muscle in its functions is much more simple than

the uterine muscle. All the heart has to do is to contract and relax. The uterus does much more. The uterus not only contracts and relaxes, but retracts also. The heart, when it has grown to its full size, is an unchangeable organ; whereas the uterus undergoes enormous changes during pregnancy and the puerperium. The methods which so far have been used in the investigation of the functions of the various muscle bundles in the uterus and heart have mainly depended upon the methods of microscopical examination of serial sections and reconstruction. It seems to me, that we have gotten into a blind alley. This is not the method by which we will secure satisfactory results. We must find out different methods. The methods are easier when applied to the heart than they are when applied to the uterus, because the heart of an animal is very much like the heart of a human being; whereas the uterus of an animal is different from the uterus of a human being. On the other hand, it is more difficult to experiment on the heart because it is so much more important to life than the uterus is.

DR. DE LEE.—Regarding the rupture of the uterus, it could hardly be called a rupture, as such injuries are produced in the majority of cases by difficult obstetric operations, and it was only by a careful examination, which it is the routine practice at the Lying-In Hospital to insist upon, that this rupture was discovered. It was simply a little tear in the uterus. Probably it would have given the woman no trouble whatever; it might have healed up without treatment.

The point Dr. Ries made about ruptures in previous labors not healing well, and the predisposing to rupture in subsequent labors, is one I thought of myself. I reported to the Chicago Medical Society two cases of rupture of the uterus which occurred at the Lying-In Hospital. Out of nearly five thousand consecutive labors, two women have died, and these two had rupture of the uterus. One was a case of injury in the first labor. The woman was a primipara, who was having apparently a normal labor, but got tired of our plan of watchful expectancy, and called in a local practitioner, who immediately applied forceps, and after a fruitless attempt of three hours' duration he said he had an appointment, and fled. The interne of the hospital was recalled and found the woman in good condition, but very much injured by the application of the forceps. He placed her on the side, and she delivered herself spontaneously of a still-born baby, with head injured. This woman then passed through a period of sepsis of three months' duration, and was discharged from the Michael Reese Hospital as well.

She soon became pregnant again, and her subsequent labor is of interest. She began to have labor pains at half-past two in the morning. At half-past three she sent her husband for the physician or interne at the Dispensary, and while he was gone she suddenly felt a bearing-down pain in the abdomen. The pains had not been strong. She sat on the edge of the bed; the

bag of waters ruptured and the arm prolapsed; she complained of feeling faint and lay down on the bed. The interne responded to the call, and was at the house in forty minutes after having been sent for. The woman was then in collapse; it was about half-past four when they telephoned me for help, because the interne recognized at once a serious condition. I sent Dr. Holmes to see the case. Dr. Holmes arrived at half-past five. The woman was in a frightful condition. They went ahead with resuscitating measures. I arrived at about a quarter after six. In a few minutes we did decapitation. We determined before decapitation that there might be a rupture of the uterus; the abdominal cavity was full of blood, and there was a tear extending from the cervix on the left side up towards the fundus. There was an immense hematoma in the broad ligament; this had ruptured, too, because there were clots on the left side. I removed these and found blood in the free peritoneal cavity. Complete spontaneous rupture of the uterus occurred within an hour and a half after the labor pains, which were not very strong.

The point I would make as a sort of moral from this case is the importance of insisting upon careful intrauterine examination after all operative deliveries.

RUDOLPH W. HOLMES,
Editor of the Society.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Meeting of February 10, 1903.

The President, EGBERT H. GRANDIN, M.D., in the Chair.

INSTRUMENTAL DILATATION OF THE CERVIX.

DR. ABRAM BROTHERS.—The first instrument which I present is one devised by me a number of years ago and consists of a four-bladed dilator permitting dilatation of the cervix to the extent of admitting one finger into the uterine cavity as required for purposes of digital examination. It was used some ten days ago on a woman of 40, who had borne children but thought she had passed the change of life eight months previously. During these eight months her health had been miserable and she had been treated for all sorts of complaints; but the question of pregnancy was never seriously considered. I found a uterine tumor extending upwards and above the umbilicus and corresponding to a six-months' pregnant uterus. There was no evidence of a fetus or liquid contents

and the cervix was elongated and hard. There was no fetal head or other parts to be felt per vaginam and the entire picture, subjective and objective, was distinctly against pregnancy. Under anesthesia, I proceeded to dilate the cervix in order to explore the uterine interior with the finger. The cervix was excessively rigid and completely closed so that it took nearly five minutes to get sufficient dilatation to insert the index finger. The lower uterine segment was empty, but further up a fleshy mass could be felt. With placental forceps some of this was brought down and proved to be hydatid mole. I turned the rest of the operation to my assistant, Dr. S. W. Bandler, and he succeeded in filling a two-quart jar with the hydatid masses. The patient has so far made an uneventful recovery.

The second instrument which I wish to present is Bossi's dilator made in Milan and the property of Dr. T. Parodi, of this city. Through the courtesy of Dr. Candella I saw a young woman about twelve days ago suffering from eclampsia. She was 19 years old and seven months advanced in her first pregnancy. She had recently begun to suffer from severe attacks of vomiting headaches, suppression of urine, anasarca and, when I saw her, complete blindness. Her urine was loaded with albumin. She had had three convulsions, and although able to answer questions, her condition was one of semi-coma. The cervix was partially obliterated, although the os was still completely closed. Pulse was 150 and prostration intense. I had her removed to Beth Israel Hospital and slight chloroform anesthesia was given. With Bossi's instrument and working very slowly for fear of injuring the soft parts, the cervix was readily dilated to 7 c.m. in six minutes. I then withdrew the instrument, completed dilatation manually, did a version and delivered a living child which died several hours later. There was no injury to the cervix. The placenta was easily removed. The patient had one convulsion on the operating table before fully emerging from the anesthetic and one more that same night. Since then her sight has gradually been restored, the anasarca has disappeared, and the kidneys have acted freely, although the urine still contains albumin.

MYOMECTOMY PER VAGINAM, TWO WEEKS AFTER LABOR, ON ACCOUNT OF SEPSIS.

DR. LEROY BROWN.—On the night of February 2nd I was asked by Dr. S. to see with him a patient who had been confined by him January 15th. He requested me to come prepared to remove a fibroid tumor from the uterus. The patient presented the following history:

Mrs. R. F., 36 years old, had had two previous confinements, both normal. A month after the third conception she noticed a mass in the abdomen. With the advancement of pregnancy this mass increased in size, but was not attended by any unusual symptoms. The labor began on January 15th and terminated in a nor-

mal manner. The child weighed $6\frac{1}{2}$ pounds. On the morning of January 17 the patient had a chill which was followed by a temperature of 102. During the day there were repeated chilly sensations. Her physician gave an intra-uterine douche daily. The uterus continued to be of large size, the fundus reaching to the umbilicus. From the 17th to the 21st there was a night rise of temperature to 102 and a morning remission to 99.5. On January 21 quinine sulphate, grs. iij every four hours was ordered. The intra-uterine douches were continued. On January 24 severe contracting pains, similar to those of labor, commenced. On January 25 cinchonism was complete as evinced by the ringing in the ears. The contracting pains in the uterus continuing quinine was omitted. On January 26 the uterine contractions continued at intervals, relieved by codeine. On January 27, same as on 26th. From the 28th to the 31st there were no contracting pains. Temperature ranged from 99.5 to 101. On February 1 she had chilly sensations at intervals during the day and complained of feeling generally sick and miserable. The temperature rose to 102. On February 2 the contracting pains were constant during the day.

I saw the patient on the night of the 2nd of February, having been previously informed by the attending physician that a fibroid tumor presented at the os, and I was requested to come prepared to remove it. On examination I found the os dilated sufficiently to admit three fingers. The fundus of the uterus was large and reached to the umbilicus. The pulse was 100 and strong.

The patient being under an anesthetic the os was dilated sufficiently to admit four fingers and the interior of the uterus was explored. The myoma was found to be sessile and attached to the fundus and right side of the organ. Under strong traction, an assistant at the same time keeping firm pressure on the fundus, about half of the tumor was removed by morcellation. The remainder came away with comparative ease. The capsule was removed with scissors, two fingers being in the uterus to guide the points. After removal of the tumor there was a sudden and profuse hemorrhage, which, however, was controlled by pressure. The uterus was packed with sterile gauze and the patient was returned to bed in fair condition. Reaction soon commenced and the recovery has since been uninterrupted. The uterus has involuted rapidly.

It is interesting to note the cause of the chills and temperature occurring a few days after the confinement. They evidently had their origin in the disintegration of the capsule which was ruptured by expulsive contracting efforts of the uterus at the time of labor. It is also interesting to note that the quinine given on the 21st and continued until the 25th undoubtedly caused further contractions of the uterus, giving rise to the severe contractile pains on the 23rd. It is also interesting to note the character of the tumor. It is largely made up of muscular tissue, and is almost a pure myoma. The weight of the tumor removed was 3 pounds.

A CASE OF UNRUPTURED TUBAL PREGNANCY—DIAGNOSIS MADE BEFORE OPERATION.

DR. GEORGE H. MALLET.—I present this case because it is typical and the specimen is a beautiful one. The patient was 25 years old, married 7 years, and has had five miscarriages, the last one six months ago. Menstruation began at 13, and was always regular, 28-day type, flows moderately, and has no pains. Her last period was on September 10, and was normal in every respect. In October no menstruation appeared. On October 21 a catheter was introduced into the uterus for the purpose of causing a miscarriage and, from that time, she flowed quite freely until November 7, when she was curetted. From that time she flowed irregularly and in small quantities until I saw her. She presented most of the symptoms of normal pregnancy, changes of coloration of skin and nipples and nervous and gastro-intestinal symptoms. The uterus was slightly enlarged and soft. A tumor was felt in right side of the pelvis presenting the soft feel described by Veit. Operation was performed on November 26 or two and a half months after the last normal menstruation. The tubal tumor was removed by laparotomy. The patient made an uneventful recovery and left the hospital three weeks after the operation.

DYSTOCIA DUE TO ACCIDENTAL ADHESION OF THE UTERUS TO THE ABDOMINAL WALL SUBSEQUENT TO LAPAROTOMY FOR ECTOPIC GESTATION—DELIVERY PER VIS NATURALIS AND BY ACCOUCHEMENT FORCÉ.

DR. H. N. VINEBERG.—The patient, 28 years old, married, and mother of two children, had been operated upon at Beth Israel Hospital for ectopic gestation. A large gauze drain at the lower angle of the wound had been employed. The resulting fistula was some time in closing; otherwise the patient made a good recovery and became pregnant again about three months later. The pregnancy apparently progressed normally, and when seen by me at 10 A.M. July 3, 1901, it had just entered the eighth month. The woman had then been in severe labor pains for three days without making any progress. She was beginning to suffer from exhaustion. On examination of the abdomen I found a long, wide scar, and its lower third was a circular opening about the size of a ten-cent piece. A thin, transparent membrane resembling peritoneum stretched across the bottom of the opening, through which the uterus could be seen. The uterus and the overlying abdominal wall projected considerably over the symphysis and could not be pushed upward to its natural position. On vaginal examination the cervix was crowded backwards and upwards towards the promontory and could not be reached with the index and middle fingers. On palpating the anterior fornix a thick wall of tissue could be made out extending above the symphysis and corresponding to the condition described as found in dystocia following

ventral fixation of the uterus. The patient was at once transported to Mt. Sinai Hospital, where, after hasty preparation, she was anesthetized and an attempt made with the hand in the vagina to catch and bring down the cervix, an assistant at the same time pushing the fundus forcibly upward. This was not successful at first and it seemed as if Cesarean section would have to be resorted to. But on inspecting the abdomen I found that in scrubbing it the thin membrane stretching across the circular opening above described had been torn away and that a portion of omentum protruded through the small opening. Under proper aseptic precautions this was replaced, and introducing my index finger through the opening I swept it across the lower part of the abdomen as far as I could, breaking up several adhesions between the uterus and abdominal wall. I now repeated my attempt to bring down the cervix and after some time succeeded in doing so. I then dilated the cervix manually and delivered by version a male fetus corresponding to about the eighth month of development. The abdominal fistula was freshened and packed with iodoform gauze. The patient made a good recovery, though the fistula was rather slow in healing. She left the hospital July 24, three weeks from the day of her admission. The baby at this time was not thriving very well, having an attack of entero-colitis, but it thrived satisfactorily after the patient left the hospital. One of the noteworthy features of the case is the accidental adhesion of the uterus subsequent to a laparotomy, proving such an obstacle to the progress of labor as might have necessitated serious surgical intervention. Had it not been for the presence of the circular defect in the abdominal scar admitting the index finger with which the adhesions between the uterus and abdominal wall were broken up, a necessity for a laparotomy would have arisen. Further interest lies in the case in the fresh illustration it presents that no matter how an adhesion between the uterus and ventral wall is brought about, dystocia may result; and all the talk about avoiding the possibility of dystocia in ventral suspension by passing the sutures on the anterior or posterior surface of the fundus and only through the parietal peritoneum and not through the muscle or fascia, is rudely shattered by such a case as the foregoing and other cases in literature. In my opinion the course pursued in the case is also of value in affording a suggestion as to treatment of cases of dystocia subsequent to ventral fixation or suspension in which the same conditions obtain, *i.e.*, fundus prevented from rising through adhesions to the abdominal wall and in consequence the cervix being pushed up to the promontory or beyond it. If, with the patient under anesthesia, the cervix cannot be grasped with the fingers of one hand while the other hand makes forcible pressure upon the fundus upwards, would it not be wise before resorting to Cesarean section to make an attempt to break up adhesions between the uterus and abdominal wall after the abdomen has been opened afterwards delivering the woman by accouchement forcé?

PARTIAL INVERSION OF PUERPERAL UTERUS WITH ADHERENT
PUTRID PLACENTAL TISSUE; GENERAL SEPSIS;
VAGINAL HYSTERECTOMY; RECOVERY.

DR. H. N. VINEBERG.—Mrs. M. Z., 38 years old, had been delivered of her eighth child about four weeks prior to her admission to Mt. Sinai Hospital, on July 8, 1901. Her physician informed me that he had diagnosticated placenta previa, but apart from this the delivery had been normal. A few days later she began to have fever and chills, with fetid lochia. For this she was given several vaginal antiseptic douches daily by his assistant. Her condition apparently improved for a time but the high fever remained and the patient was evidently losing ground. The assistant now found that it was difficult to insert the douche point as there appeared to be something in the vagina which was obstructing it. The lochia now became more fetid, and sloughing pieces of membranous tissue were passed. One of these was given to a pathologist for microscopic examination, but he could make nothing of it as it was in such an advanced state of decomposition. On her admission I was notified at once that a case of puerperal sepsis had been admitted to the service. I responded as quickly as possible. I found that everyone who had come near the patient was in a condition bordering on demoralization, for the odor from her was indescribably sickening and repulsive. The patient for this reason was not sent to the ward but to the anesthesia room awaiting my arrival. When I entered the room I came nigh succumbing to the terrible odor myself as some of the others had. In my whole experience I had never encountered an odor so peculiarly fetid, overpowering and nauseating. The patient had a strongly septic appearance, was very anemic, had a small rapid pulse, 130, and a temperature of 104 degrees. She was immediately anesthetized and taken into the operating room, where I first made a vaginal examination. I found the vagina filled by a globular mass the size of a double closed fist. The surface of the mass was covered here and there with black stringy membranous-like tissue. I could find nothing resembling a cervix, but on bimanual examination I felt a body above the mass which I took to be the uterus. I was very much puzzled with the condition and, at first, thought I had to do with a sloughing fibroid or a malignant growth (*deciduoma malignum*). There was no other course open but an attempt at removal of the mass, in which I was very much handicapped by lack of assistants, as the house-surgeon had given leave of absence to most of the staff. I began cautiously to remove the mass piecemeal, being careful to avoid hemorrhage by the free use of clamps. While I was proceeding with this, one of the house staff, Dr. Robert T. Frank, suggested that it might be an inverted uterus, and before I went much further I became of the same opinion. But the tissues were so disorganized and the landmarks so altered that it was not until I had cut away most of the vaginal mass that I was certain of the correctness of that view.

The intestines were walled off with gauze compresses as soon as the peritoneal cavity was entered. After the vessels were ligated, the vagina was cleansed, the gauze compresses removed and a strip of iodoform gauze employed to pack the intestines away from the vaginal incision. The patient made an excellent recovery and was discharged sixteen days after operation.

To the free drainage which the local condition permitted and to the frequent washing away of the debris with antiseptic douches, must be attributed the fact that the patient did not succumb to the sepsis for so comparatively long a time as four weeks. Everyone, however, who saw her when she entered the hospital was strongly convinced that she could not have held out much longer. It was also a surprise to many that any operative intervention could have saved her. The case furnished an instructive object lesson as to the physical impossibility at times of removing adherent placental residue in some cases of puerperal sepsis, and as to the value of hysterectomy in such cases.

DISCUSSION OF DR. MARX'S PAPER ON VERSION OR FORCEPS.

DR. GEORGE L. BRODHEAD.—It seems to me that the use of forceps is better than version, not only in cases where the presentation fetal head and pelvis are normal, but also and more especially where the head is relatively too large for the pelvis. The pelvis may be normal in size and the head abnormally large, or the pelvis may be justo-minor, with a normal head. In the first class of cases, delivery by forceps may not be at all difficult; but it is in the second class of cases that the results after the forceps operation are so much better than by the use of version. Take for example, the case of a woman with a slight general contraction of the pelvis, and a normal fetal head. In many instances, by slow careful traction in the proper axis we are able to mould the head through the pelvic brim and down into the pelvis, whereas to attempt to drag the head unmoulded through the pelvis (as an after-coming head) would mean frequently the loss of the child, from the failure to extract the head within the very few minutes in which it must be accomplished. In cases of flat pelvis, on the other hand, version offers a distinct advantage over forceps. In these cases, the forceps holds the head nearly if not quite over the middle of the pelvic brim, and therefore the bi-parietal diameter of the vertex is brought opposite to the narrowed conjugate, and is held there, whereas in the extraction of the after-coming head, the head slips to one side of the pelvis where there is more room and thus the bi-temporal diameter meets the narrowed conjugate, passing it easily. Cases of flat pelvis offer an excellent field for the performance (before labor) of external pelvic version. I was able to demonstrate this in a patient who was referred to me several years ago. She gave a history of two difficult instrumental deliveries (the child being still-born in both), and two internal podalic versions with one living child. As the patient had a typical flat pelvis, and

as the child at eight and one-half months was of large size, I performed pelvic version by the external method and induced the labor, which was perfectly normal, the woman being delivered without difficulty of a nine and a half pounds child in excellent condition.

Again, I believe that, in many cases, both version and forceps have been used where craniotomy was clearly indicated. I have known of men pulling for an hour or more on the head of a dead child, producing extensive lacerations of the soft parts, finally doing version in order to get the child out; whereas, knowing the child to be dead, craniotomy in the first place would have resulted in a quicker delivery, with greater safety to the mother.

DR. R. A. MURRAY.—I have observed accoucheurs, when the head has been at the superior strait, apply forceps, leaving version as the last resort. I believe it should be considered as co-equal with forceps. When the head is above the superior strait and does not enter it, there is some reason, and that reason should always be carefully sought for. There is no question but that version will bring the head through where forceps could not in cases of contracted pelvis.

Again the question arises, do we not often fail because we want to make an immediate extraction? Do we not often prevent the gradual descent of the child and allow the arms to go up so that during our endeavors to liberate them, the child is lost?

External version can only be done when the membranes are intact. Bipolar version can seldom be used when the membranes have ruptured. Internal version bears with it this, that we must use careful asepsis. I believe that we can do more with version than with forceps. I contend that we get as good results from version if it be elective and not a *dernier resort*.

DR. MALCOLM MCLEAN.—I do not believe that forceps should ever be used above the brim in cases where version can be done. It is an unscientific operation because of the shape of the instrument, the shape of the canal making it impossible to apply the forceps to the head in the normal location and to make traction without making the long diameters of the head engage in the short diameters of the inlet.

As to the dangers of version I think the last speaker has hit upon it exactly. Version is a dangerous procedure when attempted after the forceps operation has failed. Where it has been elective and failures have resulted they have been due to a hasty delivery. In such cases hasty delivery should not be attempted. When pressure was applied from above in forty-one consecutive cases I can report but one child lost.

DR. GEORGE TUCKER HARRISON.—In the main, I concur most heartily with what has been advocated by Dr. Marx, but in certain points I differ. In the first place the title of the paper is objectionable. Putting in contrast forceps and version ignores true obstetrical relations; because when version is applicable, forceps is contra-indicated, and when the use of forceps is indicated, the

time for version has passed. When we are called to a case with a narrow pelvis, with the head not engaged in the pelvis, and examination has shown that the disproportion between head and pelvis is not so great but that we can hope to deliver a living child then the question is simply this: Should our treatment be expectant, or should we employ version? The tendency of modern obstetricians is to allow expectancy to play a conspicuous part, and it does play a larger part in the treatment than it did formerly. Of course, it does seem as though we ran a risk; we may find that we must interfere when the conditions are not favorable, at least not so favorable as they would have been had we employed prophylactic version. As a rule I am most emphatically in favor of prophylactic version. If we adopt the expectant plan we must assume, as a postulate, that the uterine contractions are regular and strong, and also that we may rely upon the accessory forces, such as result from the action of the abdominal muscles. In multipara, from over-distention of the muscles, with the consequent atrophy, we find, at times, that when the woman is called upon to exert the abdominal muscles she is unable to do so. On the contrary, when the head has engaged in the pelvis and becomes fixed there, the use of the forceps is indicated, but not the prolonged use of it. The question that comes up under these circumstances is as to the election between forceps perforation or symphyseotomy.

DR. F. A. DORMAN.—There are one or two points that I should like to make and the first is, that there is great danger in performing version in these cases. Cases are lost again and again from prolapse of the cord, or from the cord becoming entangled about an extremity, and from the danger to the after-coming head from obstruction at the pelvic brim. All experienced men should be able to apply the blades of the forceps and make traction without serious damage to the head of the child. The tentative application of forceps, except in flat pelvis, is always in order. There is especial danger in version, in justo-minor pelvis, because you may lose your cases from injury to the cord or from failure to engage the after-coming head. The forceps in these cases can often bring the head safely through. I believe the only safe way is to carefully mould the head and deliver by forceps.

DR. S. MARX.—As I have stated in my paper the question of the use of forceps or version in these cases depends largely upon the individual experience of each operator, some feeling that they have more skill with one method than with the other and, therefore, each chooses the operation he feels he can better do. In the border line cases one occasionally cannot decide which operation is preferable. I think that the failure or success in doing version is due to the fact that the operation is not properly done. The membranes should be ruptured *after* the foot has been grasped. The membranes should not be ruptured at the external os and then search for the foot made. After version has been done a rapid extraction should be effected for reason of the greater danger that

is encountered from retraction of the cervix which enables the os to grasp the child's head with serious consequences. In our efforts at extraction we may cause extension of the head and liberation of the shoulders, etc., and so lose our case. Use firm suprapubic pressure and it will aid in saving a large number of the children.

I am sure that the caption of the article rubs the wrong way. I said "High Forceps or Version, Which?" and meant it. As heard to-night the tendency appears to elect forceps in minor cases over version. In minor contracted pelvic cases that would apply when the head is engaged, and would be the preferable method of procedure.

These border cases are rare. In most cases we know absolutely what to do.

DISCUSSION OF DR. BARROWS' PAPER ON SEPTICEMIA TREATED BY FORMALIN.

DR. J. S. STONE, of Washington.—If this use of formalin proves to be what is hoped of it, and if further experimentation upon animals and human beings attests its value, this will be the greatest discovery since it was demonstrated that yellow fever and malaria are propagated by the mosquito. There are one or two questions I should like to ask Dr. Barrow. Will a 1 to 5000 formalin solution do outside the body what he says it will apparently do when introduced into the circulation of the patient? Has he found that the coagulation of albumin which occurs from the use of the formalin solution, and which prevents the growth of bacteria, will act longer than twenty-four hours in either the human or animal circulation? In some cases of sepsis that I have seen and watched the idea has occurred to me of introducing saline solution into the blood. Only one case that gave results might be mentioned. This was a case of suppression of urine occurring in a septic case. Saline solution was allowed to enter the circulation until the blood was changed in color from the amount introduced. The idea was to wash out the blood, so to speak. This patient was apparently benefited but finally succumbed to pyemia.

DR. H. N. VINEBERG.—I was exceedingly interested in Dr. Barrow's paper, for I had hoped that now we had a remedy which would give us good results in cases of virulent sepsis, especially in those cases where the women appeared to be exceedingly ill, with no local signs, and who generally died within a few days. These are the cases where I had hoped formalin might be of great benefit. I think Dr. Killiani has expressed the matter accurately from a scientific standpoint. Recently I had a talk with Dr. E. Libman, Assistant Pathologist, Mt. Sinai Hospital, who has done a great deal of blood work in septic conditions, and he stated that in the severest forms often you will not find any streptococci in the blood at all. At times they are present for a day or two, or again only for a few hours. Therefore, it is to be deducted that an ex-

amination of the blood is no criterion in guiding us in the treatment. Nevertheless, I think that all of us should be glad to subject such a treatment to the test with unbiased minds. I am at liberty to cite a case in Dr. Howard Lilienthal's service at Mt. Sinai Hospital. The woman suffered from a mixed tubercular and streptococcic infection with a suppurating knee-joint which was laid open and drained. Her temperature was 105 plus.

After the intravenous infusion of the formalin in salt solution the patient became cyanotic and the temperature dropped 10.5 degrees. The temperature went up again; when it was 105 again an infusion of simple saline solution was given with the result that the temperature dropped 9.5 degrees. The patient has since died. Streptococci were at no time found in the blood. The only difference between the effects of the infusion of formalin and the saline solution was that, when the former was used, cyanosis developed and the drop in the temperature was one degree more than when the saline solution alone was used.

DR. S. MARX.—Cyanosis occurring after the infusion of formalin has been reported several times. Personally I have never had occasion to use this method of treatment, although day before yesterday I came near having a case. I was called to see a patient and was asked to come prepared to treat a grave case of sepsis by formalin infusion. The temperature was 106 and the pulse 108. I had my suspicion as to the cause and, introducing my hand, hauled out large pieces of retained placenta. I am afraid, gentlemen, that the pendulum is going to sweep the wrong way and that the cases reported are nothing more or less than cases of sapremia. I believe that Dr. Barrows cases should be critically analyzed. If he lost two out of eight cases, it shows a mortality rate of 25 per cent. I have gotten that same result with indifferent treatment. Many of these cases will get well if you keep your hands off. In cases of puerperal sepsis I have had a fairly large experience and have tried nearly all forms of treatment. With Marmorek's anti-streptococcic serum the mortality rate was nearly 100 per cent. Next I tried native serum with a mortality rate of 25 per cent. I feel that keeping your hands off the cases of streptococcic infection, and filling them with alcohol to the point of intoxication is about the best you can expect to do. Occasionally one treatment succeeds where others fail.

DR. RALPH WALDO.—A patient, 35 years old, was admitted to Lebanon Hospital January 28. She had been delivered two weeks before. In the hospital a mass of placenta was removed from the uterus. No culture was made and the treatment was expectant. At 9:30 A.M. she had a temperature 104.6. On the evening of that day her temperature reached 104.4 and then 200 c.c. of formalin solution, 1-5,000 was infused. The temperature rose to 105.6 by 3 o'clock the following morning. By 7:30 it had dropped to 101. It reached 98.5 at 11:30, the pulse being 138 at the time of the injection and 128 with the normal temperature. There were several slight rigors. The temperature gradually rose until, during

the afternoon of February 3 it was 104.2 and pulse 160. She was given 500 c.c. of the same solution at 10:30 P.M. The temperature was 105.6 and pulse 150. February 4, 3 A.M., temperature 100, pulse 114. During the next twenty-four hours the temperature varied between 100 and 104. At 2 P.M., when the temperature was 102 F., 500 c.c. of 1-5000 formalin was again infused. The temperature did not again rise. February 5, 9 A.M., temperature 99.6, pulse 124.

DR. GEORGE L. BRODHEAD.—Mrs. H., 25 years old, viii gravida, was first seen in the outdoor service of the Post-Graduate Hospital, on January 16 at 4 P.M. The patient had been in labor since 8 P.M. the previous evening. The position was R. O. P. in the brim. The cervix admitted three fingers and was, very rigid. Quinin, strychnin and chloral hydrate were administered at various times, but, at 9 A.M. the following morning, it was evident that the patient could advance the head no further and, the vertex being well down in the pelvic cavity, delivery was effected without difficulty by the low forceps operation, the duration of labor having been thirty-nine hours. The child was in perfect condition. The placenta and membranes, both complete, were expressed entirely by the Credé method. The estimated hemorrhage was four ounces. There was no laceration of the soft parts. No douche was given. The temperature one hour after labor was 98.8 and the pulse 96. The puerperium was uneventful until the sixth day, when the temperature was 103.4 F. and the pulse 138. There was slight tenderness over the fundus which was hard and one inch below the umbilicus. The lochia were moderate and the bowels constipated. Calomel and salts were ordered and the bowels moved freely but, on the following day, the temperature was 104.8 F. and the pulse 108. The lochia were red and had no odor. The patient admitted having been up since the second day with no vulva pads, and the surroundings were filthy. Under ether anesthesia, the patient having a loud mitral systolic murmur, the uterus was thoroughly explored and nothing was found except a few small blood clots. A hot uterine douche was given and the uterus packed with iodoform gauze. On the following day (8th of the puerperium) the temperature was 103 F., the pulse 108. The packing was removed. There was no odor but a uterine douche was ordered. The afternoon temperature was 104.2 F., the pulse was 108. Tonics and stimulants were administered. On the 9th day the temperature was 102.8 F. and on the 10th, 104.2, and on the 11th day the patient was admitted to the Post-Graduate Hospital. A few hours after admission the temperature was 104.6 F. and the pulse 104, and respirations 24. Smears taken from the uterus and vagina showed numerous streptococci, but the blood cultures were sterile. The blood showed 90 per cent hemoglobin. There were 4,791,200 red cells and 11,250 leucocytes. The temperature on the morning after admission fell to 101.6 F., the pulse to 104. The patient was given free stimulation and forced feeding, with vaginal douches of lysol, and an ice-coil

was placed upon the abdomen. There was no tenderness or abdominal distention and the uterus had contracted to a point about four fingers below the navel. The urine contained no albumen and no casts. On January 29, the 13th day of the puerperium, the temperature at 3 A.M. was 104.6 F. and the pulse 112, respirations 20. At noon, the temperature was 103.4 and the patient complained of intense headache. It was decided to try formalin and at 3 P.M., 500 c.c. of a 1-5,000 aqueous solution of formalin was injected by Dr. Loughran of the house-staff into the left median cephalic vein. A sharp chill followed the procedure and the temperature, one hour later, was 105.8, the pulse 124 and respirations 36. Three hours after the injection the patient was very quiet, and the headache which had been intense was much relieved. Nine hours after the injection, the temperature had fallen to 98.4, the pulse to 100, the respirations to 22. Six hours later the temperature was 105.6, the pulse 112, the respirations 28, and there was intense headache, severe pain in the left wrist and great nervousness. A septic thrombus was found on the dorsum of the hand near the wrist, and an intense conjunctivitis of the left eye. Later in the day (14th) the temperature fell to 102, but rose again rapidly to 103.4 three hours later. On the 15th day, as the temperature had risen to 103.8, it was deemed best to give another infusion. This time 750 c.c. of a 1-5,000 formalin solution was used, the procedure being followed by a chill and subsequent rise of temperature to 106, pulse 150, respirations 28. Seven hours after the injection the temperature fell to 99.6, the pulse to 120. Three hours later there was a chill lasting twenty minutes, followed by a temperature of 103. On February 1 (16th day) the patient began to cough and expectorated mucus tinged with blood. There was found congestion of both lungs posteriorly. The heart's action was fair and the pulse of fairly good character. The uterus could not be felt. There was no tenderness or swelling. The lochia were very moderate and purulent. Dry cups were used and sponge baths for the high temperatures. Dr. Davis, who kindly examined the patient's eye, found choroiditis, iritis and hypopyon keratitis. The patient grew steadily worse, became delirious, refused medication, developed edema of the lungs, and finally died on February 4 on the 19th day of the puerperium. The direct cause of death was edema of the lungs and septic pneumonia. The patient was pyemic and in bad condition. Crédé ointment was used the last few days of the patient's life without appreciable effect.

In this case the injections of formalin, while giving temporary benefit, certainly in no way influenced the course of the disease and the outcome of the experiment bears out the general conclusions which were reached by Dr. Fortescue Brickdale who, after repeated experiments upon animals, was forced to the following conclusions:

"(1.) That rabbits injected daily with toxic doses of (formic aldehyde among them) are not thereby protected from the usual

effects of a previous inoculation of anthrax. (2.) That formic aldehyde in large toxic doses so depressed rabbits infected with pneumococci that they die sooner than the untreated animal. Generally then it may be said that, at present, there is no experimental evidence which would warrant the assumption that the course of a septicemia in animals can be influenced favorably by the intravenous injection of antiseptic substances and that the only result to be obtained by pressing such a treatment beyond the maximum non-toxic dose is to hasten the death of the animal. In view of the results described in the paper and those obtained from investigations it seems useless to continue to apply clinically a method which at present is unsupported by any experimental evidence of present advantage or future prospects." ("Intravascular Antisepsis." London *Lancet*, January 10.)

Autopsy was refused.

DR. C. C. BARROWS.—What I gave was simply a report without any claims to method or procedure, and the request was given that the subject might be investigated. I want to say that all these newspaper statements were absolutely against my wishes. I wish to express my deprecation of that part of it.

Every possible precaution was taken in these cases so far as the diagnosis was concerned and by men about whose skill as bacteriologists there can be no question.

In answer to Dr. Stone I would say that we are now carrying on a series of experiments at the Cornell College, to determine the influences of the various solutions in various strengths on bacteria in different media outside the body. When completed these experiments together with a full report of a series of cases of sufficient number to bear weight will be published in full. I may say that the clinical success which I have met with in the application of this method has far exceeded my expectations, but before going into detail I prefer to wait until a sufficient number of cases have been treated at my own hands to enable me to draw definite conclusions.

Meeting of March 10, 1903.

The President, EGBERT H. GRANDIN, M.D., in the Chair.

MYOMATOUS UTERI.

DR. FRANCIS FOERSTER.—I would like to demonstrate a few specimens of myomatous uteri removed from cases on which I have operated within the past month.

In three of the specimens the point of greatest interest lies in the fact that there was a distinct torsion of the pendunculated myoma; in the fourth case I cannot speak definitely regarding the torsion, but the uterus and the myoma had turned to an angle of fully ninety degrees.

In three cases the first intimation of existing trouble was an attack of peritonitis. The patients were 52, 42 and 36 years old, the oldest having passed the menopause three years; the two younger patients menstruated regularly but rather scantily. All three were married, but had never borne children. The fact that the principal symptom of uterine myoma, menorrhagia or metrorrhagia, was missing in all these cases is interesting. This could be readily understood in two of the cases as they belong to the interstitial and subserous variety, while in the third case it is hardly credible as the uterus presented all three varieties of myomatous degeneration.

The first case illustrates that, with the appearance of the menopause, the danger to the patient by no means ceases; this pedunculated myoma had experienced a total torsion of its pedicle; gangrene of the mass followed, causing peritonitis.

The fourth specimen is somewhat interesting as the uterine artery appears sclerotic in a comparatively young person of 38 years. Here the typical symptom of hemorrhage was most prominent, the patient showing a marked anemia. At the time of operation my ligature cut through the uterine artery like a knife. All cases recovered.

The other specimen, a large

BROAD LIGAMENT CYST,

is the largest I ever saw of this type; in fact it could not have been any larger, for it filled the abdominal cavity clear up to the diaphragm. I opened the abdomen under the impression that I had to deal with an enormous ovarian cyst, but I found to my surprise the condition mentioned. There were no adhesions and the extensive sac could easily be removed through a very small incision. The patient was a young girl 21 years old. The growth of the cyst was very rapid for it developed within one year.

DR. H. N. VINEBERG.—I have now in my office a paper which I wrote two years ago, but did not publish, showing the number of cases operated upon that I had during two years (nine in number), in which the patients had reached the period past the menopause; they were from 45 to 48 years old and, in one instance, 52 years old; in these cases the symptoms were rather increased at the time when the menopause ordinarily should have appeared. There was one case of particular interest; this patient I had under observation for three or four years and in her the actual menopause had become established. She was 50 years old when she came under observation and, for two or three years, there was an absolute cessation of menstruation. At the end of this time she suddenly was seized with a profuse hemorrhage and then the tumor began to increase in size rapidly. When I first saw her the tumor was the size of a fetal head, and at the time of operation had increased in size until it reached the umbilicus. Upon opening the fibroid uterus I found a large hollow cavity, and the mucous membrane in parts showed hyperplasia.

It was Müller who first called attention to the fact that in fibroids of the uterus the conditions were different from what the profession generally supposed; in a large number of cases the symptoms usually developed rather late towards the so-called period of menopause. When a woman has fibroids I think that the general profession should have it brought more forcibly to his mind that they cannot promise a cure because the menopause is approaching. Many women are allowed to go on with fibroids in the hope that, at the menopause, the symptoms will disappear and the growth atrophy when, as a matter of fact, the opposite may obtain; and, finally, they may have to be subjected to an operation after having lived through several years of partial invalidism. It seems to me that the better course to pursue is to cut according to indications independent of the period of life.

DR. J. E. JANVRIN.—My observation has been that, in the majority of cases after menopause, fibroid tumors which are left will not, as a rule, give trouble. At the same time I have had cases in which operation for hemorrhage prior to the menopause had been performed and still trouble subsequently followed, i. e., the hemorrhage came on again after the menopause. In three out of four cases, in my experience, fibroids do not give serious trouble after the menopause has become established.

DR. E. H. GRANDIN.—I should like to go on record as stating, as the result of my individual experience, that the rule should be in these days when aseptic and elective abdominal or vaginal section can be performed with scarcely any risk, to operate. In view of the fact that any fibroid may grow or may become malignant or become strangulated, I feel that we are justified in advising operation whenever we discover a fibroid. The cases that I have seen after the period when the menopause should have been established are those which have presented one or another of the above symptoms. Again there are cases that have had a postponement of operation until it was too late for any operation to be of avail. Nowadays, therefore, at any period of life, when a fibroid is discovered, irrespective of symptoms, and in view of the fact that they are far easier to remove then and with less risk to the woman, I believe that the operation should be performed.

DERMOID CYST COMPLICATING VAGINAL HYSTERECTOMY FOR COMPLETE PROLAPSUS.

DR. G. GRAY WARD, JR.—This specimen I removed from a patient, 40 years old, who was suffering from a complete prolapse of the vaginal walls and of the cervix. She had borne several children and the condition had existed for two years. She did not complain of any abdominal symptoms. She was very fat, had a weak heart action and albumen and casts in the urine. The sound showed a depth of six and a half inches from fundus to external os, which increase in length was due to the greatly elongated cervix, as is usual in these cases and which is shown by the specimen.

I performed a vaginal hysterectomy four days ago. After liberating the uterus from the broad ligaments I found that a cyst of the right ovary, as large as an orange, was adherent high up in the pelvis. This was removed and, as the specimen shows, proved to be a dermoid containing considerable hair, sebaceous material, and a few small calcareous masses.

Two or three meetings ago I presented a specimen of complete prolapse in which I operated by opening the abdomen and performed a supravaginal hysterectomy. I then anchored the cervix to the abdominal wall by strong silk sutures, including the fascia of the rectus. I did not discover this dermoid cyst until the uterus was well out. I found that I could not draw the uterus down completely, so I introduced my hand and found this cyst, which was situated high in the pelvis, and was adherent to the parts high up. I do not think the cyst had much to do with her prolapse because it was adherent so high. The question of how to retain the vaginal walls after operation is a troublesome one. The woman's condition was such that I did not feel justified in doing more for her at one sitting. I propose to do an anterior colporrhaphy, a posterior colporrhaphy and a perineorrhaphy subsequently, to support the vaginal walls. I have done that before with most satisfactory results, especially in a similar case to this one. Sometimes the cystocele will return in these cases and I have succeeded in overcoming this difficulty by the use of the glass ball pessary which was a favorite method of the late Dr. Skene, my preceptor. It has the advantage of being non-irritating and is not corroded by the action of the vaginal secretions, so can be worn indefinitely without removal.

DR. E. H. GRANDIN.—Only six weeks ago I was called upon to operate for a similar condition in a woman, not a hard working woman, who was about 45 years old. I reversed the method employed by Dr. Ward. I curetted her and amputated the cervix, excised a portion of the anterior vaginal wall and performed posterior colporrhaphy. When I opened the abdomen I found a dermoid of the left ovary which I had not suspected. I did a ventral fixation. Had this woman been in a different walk of life, one requiring hard work, I should probably have performed hysterectomy, but by the suprapubic route, since, in case of complete prolapse, it is necessary to hitch up, so to speak, the vaginal walls, and this can only be done from above. There is a vast difference between hypertrophic elongation of the cervix and prolapsus uteri.

A PRACTICAL DEMONSTRATION OF THE POSSIBILITY OF THE EXCLUSIVE USE OF ELECTRO-THERMIC HEMOSTASIS IN ABDOMINAL SURGERY.

DR. A. J. DOWNES of Philadelphia, presented instruments and demonstrated their use as hemostatics in abdominal surgery. He also presented drawings showing these instruments *in situ* in va-

rious abdominal operations. They were especially applicable in intestinal work, making an aseptic operation possible.

DR. CLEVELAND.—This is a method in which I am much interested, having used it when Dr. Skene first brought out his instruments. I believe I was one of the first to employ it. I was very enthusiastic about the method, and did every operation with the instrument where it could be employed, in both abdominal and vaginal work. I employed it in the removal of large fibromiomata, in the removal of ovaries and tubes and appendices. I felt then that we had an instrument and a method that were far superior to any others. When the angiotribe came into use, I took it up and employed it extensively. Latterly I have not used the angiotribe or the electric clamp as much as formerly. This has been largely due to the improvement in the preparation of catgut upon which I now feel that I can absolutely rely. However, I do continue to use the angiotribe to control the uterine arteries in every case of vaginal hysterectomy.

I think these instruments of Dr. Downes beautiful pieces of mechanism, though I always found the clamp of Skene in every way satisfactory. I question whether the method is to be of long life. In removing sections of intestine it is probably superior to any other method, and it makes the operation absolutely aseptic. I feel, though, very positive that the time has gone when this method will be used to any great extent. The ligature of catgut is far more satisfactory, and when, as now, it can be perfectly sterilized, there is no excuse for going to the expense this electrical equipment involves.

DR. J. E. JANVRIN.—I have had no experience with either instrument. Dr. Downes has spoken of several dangers attending the use of the angiotribe. I have used the angiotribe a great deal during the past five or six years and I have never had any ill consequences follow its employment. I use it, as Dr. Cleveland says he uses it, in vaginal hysterectomies and I have never had any trouble following its use. Therefore I am favorably impressed with the instrument. Having had, however, no experience with the instruments presented I can say nothing further. They seem to me unique and very much to the point, as explained by Dr. Downes. Whether they will eventually take the place of the angiotribe or not, or the clamps, or properly prepared catgut ligatures, only time will tell.

DR. J. RIDDLE GOFFE.—I share in the appreciation expressed for Dr. Downes' instrument and believe it to be a beautiful piece of mechanism. I quite agree with what has been said by the speakers who have preceded me. I still have faith in the angiotribe and use it and ligatures indiscriminately, as fancy or conditions indicate. There is one objection to the electro-cautery, *i.e.*, the necessity of always having with you a battery, and one that will invariably do its work. A man who comes to an operation depending upon such an uncertain agent as electricity will often find himself in an unenviable situation. This I think is a strong argument against

its universal use. That it will accomplish all that Dr. Downes claims for it I have no doubt.

DR. H. J. BOLDT.—There is one condition in which I think this method may be very desirable, *i.e.*, in malignant disease. I feel that in the use of heat we have what is most desirable in destroying malignant neoplasms, getting deeper into the structure than with any other method so far as I know, but I cannot see how by employing heat for 20, or 30, or 40 seconds we can accomplish the desired results. The method which our late colleague, Dr. Byrne, taught, gave excellent results in the so-called inoperable cases of cancer.

DR. CHARLES JEWETT.—I had the opportunity often to see Dr. Skene work with his cautery clamp. Not infrequently he was compelled to resort to ligatures. He labored not only under the disadvantage, however, that his clamp was not strong enough to crush the pedicle, but that he had to depend on a storage battery. My own experience with the Skene clamp was most unsatisfactory.

Two questions I would like to ask Dr. Downes (1) whether his clamp saves time? (2) What amount of pressure can be had?

DR. A. J. DOWNES, of Philadelphia.—When one has become accustomed to the use of these instruments he can control hemorrhage more quickly than with ligatures. A beginner cannot do so. I do work more quickly with these instruments and do it in a bloodless field. My last ligature I used in April, 1902. I look at these instruments as a means we can employ in any operating room to control hemorrhage within the abdomen or elsewhere except where we should be dealing with a very large artery like the femoral in which the blood pressure is probably too great. I became interested in these instruments before Skene had finished his improvements. I was the first to conceal the conducting cord along the side of the instrument. The instruments of Dr. Skene cannot be used indiscriminately in pelvic surgery for they furnish neither sufficient pressure nor heat. The pressure required is about 600 to 800 pounds and the heating apparatus should be such as to require not over 40 seconds in heavy pedicles. My reason for changing the instruments so that the poles are near the pressing blades is because this is more practical and insures cool handles. In Dr. Skene's instruments with conducting cords running along the shafts, the conducting wire becomes so hot that they cannot be handled readily. If the amount of heat that is used in his blades was increased his conducting cords would be too hot for safe handling.

In regard to the mortality rate I wish to state that where these instruments have been used there never has been a drop of secondary hemorrhage after the abdominal incision has been closed. My first three hysterectomies by this method died but the deaths were so far remote from the time of operation that hemorrhage could not figure as a cause. One patient died on the sixth day of double pneumonia. One on the eighth after vomiting severely on the

sixth day and thus possibly opened the peritoneal reflections, for the operation had been vaginal hysterectomy. The vomiting was caused by efforts to eject a long round worm. On the eighth day she was suddenly seized with agonizing pain and died in an hour and twenty minutes. An immediate post-mortem showed an angry red condition of the peritoneum. My post-mortem was limited and I have been in doubt as to whether death was due to opening of the peritoneal reflections as above stated, the evidence of which was a mild degree of exudate, or whether a round worm had perforated the intestinal wall, thus setting up the acute infectious condition so rapidly causing death. The hemostatic stumps made at the time of operation were in excellent condition. The third death was one in which a chronic appendicitis had been operated on and hysterectomy at the same sitting. The case was so difficult that it required forty minutes to free adhesions and remove the appendix. The appendix was removed by the electro-thermic instruments. In freeing the adhesions the mesentery of the cecum was badly torn and hemorrhage was controlled by ligatures in this place. Death occurred in forty hours. The cecum was found coagulated, angry and black, probably due to interference with the circulation in the mesentery. This was one of my early hysterectomies and I was not using in all places the method as now. I did, however, do the hysterectomy without ligatures and the appendix and meso-appendix. I could collate sixty hysterectomies that have been performed by this method by different operators. In no case after the close of the abdomen was there hemorrhage. I have performed twenty-five hysterectomies in my own service, have performed five for other surgeons, and have assisted in five others, all recovering but the first three. One of the great claims that I make for this method is that adhesions are not liable to form after operation and that there is less pain, owing to the fact that no nerves are constricted. I am trying to get the members of our profession to look at this method, not for use in cancer alone or cases with large heavy pedicles, but for all cases whenever hemostasis is required. With the method reduced to the present practical state we can dispense with one assistant and do cleaner work.

HYGIENE IN GYNECOLOGY.

DR. A. C. VON RAMDOHR read this paper. He said that as in general medicine hygiene was considered the most important factor in combating the source of disease, so it was also in gynecology. Hygienic treatment was the most valuable therapeutic agent in wrestling with women's troubles. In the prevention of women's diseases, marriage between minors, between people one of which is syphilitic, between those of near kin, and between those who by reason of their poverty were unable to rear their young ought to be prevented if possible. For the offspring of the former classes appeared as natural weaklings, while those of the latter class were forced by circumstances to en-

ter the race of life before they were physically able and thereby often became physical wrecks. The influence of crowded quarters with their inherent absence of cleanliness and morals upon the female child were well recognized. The child in these surroundings suffered not only from corrupt atmosphere but from improper clothing and a lack of education. The parents made a little girl a self-supporting wage earner as soon as the law will permit, and working in sweat-shop or factory she had soon laid the foundation of future sickness. With wealthy parents girls were hardly any better off. The bottle cannot equal the mother's milk and children's balls and fashionable boarding-schools did not improve the morale or physique of the fashionable girl. It was the duty of the gynecologist to prevent women's troubles by hygiene. The old axiom *mens sana in corpore sano* as applied to women may be made to read "*Nullus uterus (et adnexa) nisi sanus in corpore sano*:" ergo, *Mens sana* is equivalent to *uterus sanus*. That is, a healthy body contains a healthy mind and healthy uterus. To the greatest extent the patients of the gynecologists suffered from subjective symptoms. They complained of pain and consequently the nervous system become affected. The gynecologist must first make a thorough and complete examination and diagnosis, and if surgical interference was indicated such work should precede all other curative measures. All operations made a strong impression on women's mind and often relieved her complaint only for a time, but we should bear in mind that therapeutical measures would sometimes work a like charm. Massage, the rest cure, Christian science, hypnotism, hydrotherapy, Kneipp's vagarisms, each took their turn in seeming effective in cases where the affection was simply subjective. Now-a-days up-to-date gynecologists used the newest fad, i.e., electricity in one or the other of its forms. Nerve specialists acknowledge that this agent only acted curatively on 25 per cent of their cases. In the local treatment of uterine affections, deviations of the uterus, which produce painful symptoms, or may be the cause of sterility, will of course be benefited by restorations. The troubles of the majority of copulating women are the result of the gonococcus. Noggerath, by his invention and Lawson Tait by his original technique had made a noble effort towards stamping out this cause of disease. Hot or cold douches for inflammatory troubles plus glycerine tampons could not be dispensed with. Whether paintings with one or the other agent for plain endometritis had any but impressionable advantage he seriously doubted. Medicinal agents were good, either as a placebo or as aperients, or ferruginous compounds, as most of these patients were subjects of anemia and constipation. Ergot had prevented many fibroid operations. As to Lydia Pinkham, he thought that her success in many cases was due to the sensible hygienic instructions that accompanied the nostrum. Knowing that all aches and pains were the result of sensitiveness, and as sensibilities were relative and a subjective symptom which cannot be appreciated objectively by any other person and that otherwise

healthy women were least sensitive comparatively, therefore a course of general treatment could only conduce to the health of the individual. This general treatment was called hygiene and all women would be benefited and some restored to health and happiness by such treatment.

On being consulted by a patient and having heard her complaint which usually consisted of pains in the back or abdomen, leucorrhea, etc. and having excluded heart, kidney, lung trouble, and so on, and then having excluded diseased or misplaced genital organs, which might need surgical or local treatment, it behooves us to inquire carefully into the marital relations and to remedy whatever needs correction in this direction of possible. The house, surroundings and mode of life must next be studied, whether the patient was kept too warm or too cold, whether the fresh air supply was sufficient, etc. What amount of care she took in the household management, what work she performed, or what food she partook, what recreations, theatres, balls, parties, reading of medical books, athletic exercises, etc. she indulged in. What stimulants or narcotics such as tea, coffee, tobacco, morphine, chloral, bromine she partook of, and in what quantities. The care of the skin was next in order. And last but not least her mode of dressing; *i.e.*, shoes, heels, corsets, underwear, etc. That her stools ought to be attended to was self-understood, as also the general care at the period of menstruation. Also the support of a pendulous abdomen. Physical exercise is frequently overdone unless carefully prescribed and superintended. Six ounce dumb-bells were better than two pound ones; and a walk of one-half mile than one of several miles if it tire the patient. It was with this graduated and superintended hygiene that the well-known watering places obtained their stupendous results. Absence from home influences and the husband, fresh air, baths and spongings carefully administered, carefully prescribed exercises, attention to diet and digestion, and early hours would do more toward curing a patient of her symptoms than long-continued local or symptomatic treatment indiscriminately employed.

DR. ANDREW F. CURRIER.—There is perhaps one point that has been overlooked by the reader of the paper, and, in considering this, we can paraphrase the famous statement of Dr. Holmes: "If you want to cure troubles of this kind you must begin with the remote ancestors." Certain of the points that have been brought to the attention of the Society appeal to everyone of us as practical men. I think that if more attention were paid to teaching hygiene in the female the possibilities for work by gynecologists and surgeons would become fewer, much to the advantage of the individual. I feel that the time is coming, and coming soon, when a large number of diseases which we now treat by surgical means, will be treated by other means. These will be more far reaching in their results and in effect upon the individual than simple removal of the portion which, to the eye of the surgeon, appears to be diseased. Such treatment will be of particular value

for the malignant diseases. I believe that it will be for the good of humanity and the medical profession as well.

DR. H. N. VINEBERG.—There is one point that I should like to make reference to and that is the great risk a girl runs who marries a man who had gonorrhea at some time of his life, when she herself is a sufferer from an endometritis. In my experience the worst cases I have ever seen are in those instances where a man marries a woman in good faith, who has been told by the specialist that he can marry, when this woman has given a history of leucorrhea prior to her marriage. She may have either an endometritis or an erosion of the cervix. These cases represent some of the most unfortunate cases I have to deal with. I think that this is a point on which mothers should be instructed. Girls who are subjects of a marked leucorrhea and dysmenorrhea should have some attention paid to these prior to marriage. This is a practical point which, to my mind, has not yet received sufficient attention. Very few men marry before they have been pronounced by their attending physician as cured of their gleet. Now we know, as a matter of fact, that when a man has had a posterior gonorrheal urethritis it is seldom that he is completely cured. Still if such a man marries a woman with a healthy uterus the chances are remote of any serious infection; but should the woman have had endometritis prior to marriage, be the cause what it may, serious and extensive infection is very likely to occur.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY.

Meeting of February 24, 1903.

The Vice-President, DR. GEORGE H. MALLETT, in the Chair.

DR. GEORGE H. MALLETT.—I wish to speak of an unfortunate occurrence at the Memorial Hospital, where a nurse and a patient were badly burned. It was estimated upon careful observation, that three-fourths of the patient's body was burned. She was found in a state of collapse when the doctors reached her. She was immediately infused in the veins with 1,000 c.c. saline solution and the effect upon her pulse was remarkable. Reaction very quickly set in and the pulse improved immediately.

Nine saline infusions were given, varying from 1,000 to 1,500 c.c. Soon after the accident occurred, her temperature was 105; after the injection, it went down, about three degrees and remained so for several hours. She had suffered intensely after the accident. The day following we gave her a bath of bicarbonate of soda and water. From that time on, she did not suffer at all; she took nourishment, the kidneys acted, and it was re-

markable how she rallied. She lived almost a week after the accident.

I remember distinctly the accident at the Woman's Hospital. About one-third of the body surface was burned—back and chest, and she died that night. It really seemed as if my patient would get well, but meningitis developed and she died.

I mention this case to illustrate the action of saline infusion, and the ease and comfort received from being put in a bicarbonate of soda bath. The water was saturated with handfuls of sodium bicarbonate. She never had to take morphin after the bath. We put an inflated rubber ring under her head and cotton in her ears. The temperature of the water was 102° to 103°, and we gave her rectal irrigation.

It was remarkable that her kidneys acted as they did. That is always a source of great danger in the case of burns. After infusion and rectal irrigation, her temperature went down considerably, as it always does in such cases.

DR. P. F. CHAMBERS.—I have tried bicarbonate of soda for years. I make a paste of it, and wrap the part up in it. If possible, I have found it better to mix the soda with linseed oil; it does not crack and get so hard afterward.

OPERATION OF ABDOMINAL MYOMECTOMY, COMPLICATED WITH ACUTE LOBAR PNEUMONIA.

DR. JAMES N. WEST.—I will report the case of a young woman who called to see me a short time ago. She is twenty-six years old, had been married two years. She complained of menorrhagia, flowing eight to twelve days excessively, and was quite anemic.

Upon examination, I found the pelvis pretty well filled with a myomatous tumor of the uterus, which rose almost to the umbilicus. Considering the age of the patient, and the fact that she was married, and never had been pregnant, I thought I would attempt to give relief by myomectomy. Upon introducing the sound into the uterus, I found it to be 8 inches deep. Upon opening the abdomen, it seemed to me an unfavorable case for myomectomy. There were several tumors, one or two small ones, one, four inches in diameter, located in the posterior wall, intramural, and others in different parts of the uterus. I did myomectomy—a very extensive operation (ten tumors were removed), and cut out two large, wedge-shaped pieces of the uterus. The whole body of the uterus was so much enlarged, that to close the rent necessitated the cutting out of wedge-shaped pieces. The operation took about one and one-half hours, after which she was returned to bed in excellent condition—no shock, pulse about 90. Within forty-eight hours, the temperature was 105, pulse 122. The pulse always continued to be of good volume.

I felt very much alarmed about her having such a high temperature. I notified some of my friends to be ready to help me

by two o'clock if the symptoms had not abated, to open the abdomen and to do hysterectomy, believing the uterus to be the seat of the trouble—perhaps of septic infection. At two o'clock the temperature was $103\frac{1}{2}$, pulse 115. I deferred operation, and left instruments there to be ready to proceed if the symptoms grew worse. The temperature the next morning was $102\frac{1}{2}$, and the symptoms abated until the sixth day, when the temperature was in the morning about 99, and in the evening $100\frac{1}{2}$, about what it should be after an extensive operation.

On the ninth day we dressed the abdominal wound for the second time; it seemed to be perfectly healed, and in good condition. On that day, the temperature was 104—it dropped in the morning to nearly normal. On the tenth day my attention was called to the fact that there was a little discharge from the lower part of the abdominal wound. I found an extensive abscess beneath the skin, which had been healed and apparently healthy.

I freely opened the wound and sterilized it with strong carbolic solution and peroxide, and packed it. The patient did well for some time. On the fifteenth day, the temperature again rose to $104\frac{1}{2}$, pulse proportionately, and the respiration became quite rapid. Within a short time, I found the lower lobe of the right lung almost completely solidified. I feared that she had septic pneumonia; at least that she had septic foci in that lung. The temperature dropped quickly from that of the fifteenth day. The pulmonary complication has been going on for eight days. The lung is still solidified; the temperature remains between 99 and 101. The pulse keeps down within 100. The general appearance is good, appetite good. She appears to be doing as well as a woman could who has the lower lobe of one lung solidified. This morning the temperature was 99; last night, $101\frac{1}{2}$. I believe resolution will take place and the woman will get well.

The skin abscess is healing kindly. There is no tenderness in the pelvis or evidence of trouble. It is an interesting case on account of the extremely high temperature after operation, the extent of the operation, and also from the complications. I do not believe the abscess had anything to do with the lung complication because I think that had that been a focus carried to the lungs the woman would have died ere this.

DR. HERMAN GRAD.—Attention should be called to the fact that in doing myomectomy, little spaces are left for small blood clots to form, which, being so near the venous sinuses, are apt to be carried to the general circulation. If it were possible after doing myomectomy to obliterate the spaces it would obviate the condition. It is almost impossible to do it, the blood clots and the fibrin are carried to the general circulation.

In Dr. West's case there may have been such a deposit in the lung. In this case there were small septic foci in the abdominal wall. We know germs are apt to be carried in the venous circulation, and the lung may become infected consequently.

DR. MALLETT.—The English consider myomectomy a dangerous operation. They think none but the most expert should attempt it. I think it most valuable in many cases. Many women will submit to myomectomy where they won't hear of hysterectomy.

DR. WEST.—I drew a conclusion from this particular case which may be useful to others. This was my sixteenth case of abdominal myomectomy. Ten tumors were removed. I closed up the spaces by continuous sutures, layer by layer, and also made through-and-through sutures. I did something I would not do again. The first incision was over a large intramural tumor across the fundus of uterus. In making this incision a very large blood vessel was cut. I seized the neck of the uterus and held the uterine arteries with my hand until I could get an elastic ligature about the cervix. No considerable amount of blood was lost, the bleeding having been quickly controlled.

SYPHILITIC VULVO-VAGINAL ABSCESS.

Before removing the ligature I saw large quantities of blood in the sinuses and felt alarmed as to what might happen in taking the ligature off. I used hot water from time to time as the parts got cold from exposure. Another time, I would remove all the small tumors first without using constriction about the uterus. It would not be necessary to use constriction for any great length of time, as most of the time was consumed in removing the small tumors. I would even attempt to remove the large tumors without constriction. I would then put on the elastic ligature last if hemorrhage appeared to be too great.

DR. CHAMBERS.—A woman came to me from the country with a history of abscess of the vulvo-vaginal gland of two months' standing. There was pain, and she said she had periodic discharges of pus. "It would discharge, be better for a few days, grow larger and again discharge." I found on the left side of the vulva a mass the size of a pigeon's egg. I detected no distinct fluctuation; but it felt soft under my finger. When I cut down upon the mass I found it was not a cyst; it was a hardened, indurated gland. I dissected it out very carefully, made it aseptic and sewed it up. Three days after the house surgeon told me the stitches had broken down, and it was an open wound. I cautioned him to dress it carefully and keep it thoroughly cleansed, and apply aseptic dressing.

In the meantime, I sent the specimen to the pathologist for examination and at the end of a week he reported it to be syphilitic. Up to that time there had been no healing. I changed the treatment and put her on iodine and mercurials, washing with mercury and in three days she went home healed. She had given no history of syphilis, and there was nothing in her condition to make one suspect it.

DR. WEST.—It is of great importance to find out the character of these cases. At the Post-Graduate Hospital a case came in with every evidence of malignant disease involving perineum, vagina and rectum. She had been refused operation by one surgeon. As a matter of routine, we had the specimen examined. The pathologist reported it to be a non-malignant, syphilitic growth. She was put on anti-syphilitic treatment and went away.

I recently saw a case of suppurating vulvo-vaginal gland the size of a large pigeon egg. Pus could be squeezed out of it at the natural opening. I injected it with carbolic solution, about 1 to 8, leaving part of the pus in. The mass subsided, in twenty-four hours the patient was free from pain. That was ten days ago, and there has been no further trouble with the gland.

I wanted to know if any of the gentlemen had tried it; if not, I would like to have them do so.

I did not take the temperature. She was suffering very acutely when she came to the office. She had had such acute pain for several days and nights that she could not sleep.

DR. CHURCHILL CARMALT read a paper on

THE INCISION IN CESAREAN SECTION.¹

DR. CHAMBERS.—We all owe Dr. Carmalt thanks for his paper. He is to be congratulated on his success. I should have said the most natural incision was the anterior; but from his paper, the statistics he has given us, and points brought forward, I should certainly advocate the transverse section. It appeals to one's good sense and better judgment.

DR. DOUGAL BISSELL.—My experience in Cesarean section is somewhat limited as I have operated but twice. On each occasion I employed the longitudinal incision. When I did the second operation I seriously considered the advisability of making the transverse incision, thinking that by that method I might lessen hemorrhage; but I decided in favor of the longitudinal incision because it seemed to me that I could empty the contents of the uterus through such an incision with greater ease, thoroughness and rapidity.

The transverse incision at the fundus crosses comparatively few vessels, which necessarily diminishes the amount of bleeding. Also we are less apt to encounter the placenta in that region—another decided advantage, and as Dr. Carmalt has shown, the cut walls of the uterus approximate with more exactness after the uterus is empty. The only objection which such an incision would seem to offer is the somewhat limited opening through which the child is to be extracted.

DR. WEST.—I feel pleased to have heard Dr. Carmalt's excellent paper. He has called attention in this way to the transverse incision, and brought out facts in connection with it, which are of

¹See original article, page 622.

great importance. While I have had no experience save in a secondary way with Cesarean operations, I should feel inclined to adopt the transverse incision from the points he has made to-night.

DR. GRAD.—I should think the transverse incisions would cause less traumatism, and in that way it would be a preferable incision.

DR. MALLETT.—I have seen but two cases of Cesarean section and in both of these the anterior incision was used. I have wondered whether it might not be more difficult to extract the child through the fundus rather than the anterior wall. In both of these cases the uterus was lifted from the abdominal cavity, and the child suffered from asphyxia, and was with difficulty resuscitated. I supposed that was the result of the anesthetic, and a regular accompaniment of the operation.

DR. CARMALT.—What is looked upon as asphyxiation after Cesarean section is often the result of the blood being surcharged with oxygen; if left alone for a few minutes the child will breathe naturally. Nearly everybody tries to make the child breathe, and the first thing done, is to remove the mucus from the nose and mouth, when really it is a stimulus to breathing. If alive and the child has been brought out physiologically, in two or three minutes it will breathe quite naturally.

I have assisted at ten cases where the child was turned out, and it was in some instances moderately asphyxiated, but breathed within two or three minutes.

Men in this town do not realize the good work Dr. Cragin has done in this operation. Twenty cases with no death of the mother is quite extraordinary, for this country, because most men here have not the series individuals have abroad. His method of short abdominal incision I deprecate—the method of going through the abdomen to the uterus with one cut. In one case there were gut adhesions between the uterus and abdominal wall which might have been a source of danger.

Dr. Cragin makes a short abdominal incision and a short uterine incision and then either lifts the uterus into the wound or out through it, but he usually leaves it in the abdomen and afterwards sutures. His results show his method to be very good.

He runs catgut sutures in uterine wall, one in muscle, one in muscular-peritoneal coat, sometimes reinforces the peritoneal coat, and closes the abdominal wall in the usual way.

This incision does not demand removal of the uterus from the abdomen.

DR. BISSELL's objection as to insufficient exposure, is quite as good, whether transverse or longitudinal incision be used. The placenta and membranes over entire uterine cavity can be exposed and examined by separating the lips of the wound as the uterus is turned out, for that purpose. In this way one should get a good view of the uterine cavity.

Controlling hemorrhage by holding the uterine arteries is not a usual proceeding in view of most men's experience to-day. The use of the old elastic ligature sometimes more quickly stops hemor-

rhage, but interferes with circulation and uterine contraction. I shall never have uterine arteries held unless some uncontrollable hemorrhage occur. I think rapidity of suture of the uterine wall will prevent hemorrhage. There is no case reported of death in Cesarean section from hemorrhage.

In two of my cases there were stitch abscesses, but the patients did remarkably well. I have seen a good many cases infected, in many men's hands, but they all did remarkably well in spite of that, although I should give sepsis as a predisposing cause of abdominal hernia.

DR. CHAMBERS.—Do you require a larger abdominal incision to make a transverse incision?

DR. CARMALT.—Fritsch says not; personally, I would say yes. Apparently the only men who have done it are Germans. I think a man named Müller made a transverse abdominal incision with a transverse anterior incision.

DR. WEST.—I would like to ask if Dr. Cragin knows how dangerous it is to get amniotic fluid into the abdominal cavity.

DR. CARMALT.—The consensus of opinion is that when the membranes are unruptured it is not dangerous. It is not very dangerous when the membranes have been ruptured, because amniotic fluid has drained away. A good many men wash out afterward. I should not see any occasion to, if the membranes had been unruptured.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECO- LOGICAL SOCIETY

Meeting of November 7, 1902.

The President, G. WYETH COOK, M.D., in the Chair.

PATHOLOGICAL SPECIMENS.

DR. J. WESLEY BOVÉE presented a specimen of

FIBROMA OF THE LABIUM MINUS.

The history of the case was as follows: Emma Q., colored, twenty-six years of age, married seven years, had never been pregnant. She first came under his care last Spring, complaining of pain, itching and a tumor about the genitals. An examination at that time revealed a warty excrescence of irregular shape and having various diameters up to four inches, springing from the right labium minus. Considerable erosion of the structures adjacent to the growth was present and a foul odor from the dis-

charge from these surfaces was noticed. In one portion of it, near the middle of its attachment to the vulva there was the appearance of its having broken down. A specimen from near this point was excised for microscopical examination. Dr. James Carroll, U. S. Army, who examined the specimen, pronounced it fibroma. October 28, 1902, she again applied for treatment in my service in Columbia Hospital, saying she had carried the tumor for two and one-half years and desired its removal. The growth, though large and inconvenient, had not prevented her following her duties as housemaid. November 4, 1902, under chloroform, the growth was excised from the labium and the wound closed with buried continuous sutures. Thus far she had made splendid progress toward recovery.

DR. BOVÉE also presented two specimens of

DOUBLE PAPILLOMATOUS OVARIAN CYSTS

of large size. The first was removed in April, 1902, from an Italian woman, thirty-eight years of age, married, and the mother of three children. Up to the time he saw her, a few days before operation, she had been menstruating regularly but complained considerably of nausea, vomiting and constipation. For the last month she had had severe pain in the back and lower part of the abdomen. Her abdominal wall was very thick and her weight about two hundred and fifty pounds. The abdomen was distended by several gallons of fluid and as a minor complication she had an adherent piece of omentum in a supra-umbilical hernia which with the presence of the ovarian tumor required an incision extending from the pubes nearly to the ensiform cartilage. The right cyst contained from two to three quarts of fluid and two pounds of solid material. The left was a trifle smaller and both were extensively adherent to the omentum. She made a splendid recovery and up to the present time had had no return of the trouble.

The next was from a white woman, thirty-two years of age, a native of Virginia, who had borne one child seventeen years before. She was about the same size and figure of the patient in the preceding case and her menstruation had been profuse and irregular. She had been ill six months. The circumference of her abdomen at the ensiform cartilage was 31 inches, at the umbilicus 50½ inches, four inches lower 49 inches, and the distance from pubes to ensiform 20 inches. She stated the growth had rapidly increased in size. Operation was done in September, 1902. In this case a large amount of ascitic fluid was allowed to escape and the tumors were found extending to above the umbilicus. The right was considerably larger than the left and the only adhesions to either side were some slight ones in the pelvis under the tumors. Both appendages were removed and the woman made a rapid recovery.

DR. BOVÉE also presented two specimens of

TUBAL PREGNANCY.

The first, which was one of tubal abortion, was removed about three months ago from a woman thirty-three years of age, the mother of one child seven years of age. Since the birth of that child she had never been pregnant to her knowledge. Her menstruation had been irregular and she had frequently had interims of six weeks between periods. One such occurrence was early in September of this year, but the flow was accompanied with unusual pain and at the end of a week a small decidua was expelled. The pain and flow continuing and the strength of the patient not returning an examination was made, which revealed a mass to the side of the uterus, which was diagnosed as a tubal pregnancy. Operation was done and the Fallopian tube was found distended with blood clots and a large amount of blood both coagulated and fluid, dark and light, was in the peritoneal cavity. No fetus was found. She made a good recovery.

The second case of tubal pregnancy was removed from a white woman thirty-six years of age and the mother of seven children. Missing a menstrual period and believing herself pregnant she secured the services of an abortionist, who made three ineffectual attempts to secure the expulsion of the fetus from the uterus. She was attacked with severe pain, chills and high temperature shortly afterwards. The pain was irregular and paroxysmal. The flow ceased and gradually the abdomen became enlarged. About three months later Dr. Bovée first saw the patient and found a tumor extending from the cul-de-sac to above the umbilicus. Abdominal section was performed and a fetus developed to about four months was removed and with it the placenta attached to the intestines, omentum, pelvic walls and the margins of a rupture in the right Fallopian tube. The right appendage was removed and as there was considerable oozing from the raw surfaces from which the placenta had been removed the pelvis was lightly packed with gauze, one end of which was conducted into the vagina through an opening in the cul-de-sac. This patient is still in the hospital.

DR. I. S. STONE presented a large

UNRUPTURED PYOSALPINX OF CURIOUS SHAPE.

which he had recently removed from a negress of fourteen years. The specimen consisted of right tube and ovary and contained several ounces of fluid. The ovary was not diseased. The patient had pelvic peritonitis which extended over the peritoneal surfaces of intestines as well as all other peritoneal surfaces in the lower third of the abdominal cavity and pelvis. Her symptoms were similar to those of appendicitis and but for the physical examination one would not expect to find such a condition present in such a youthful patient. When the abdomen was opened the greatest difficulty arose when an attempt was made to ascertain

the nature of the disease and to find and separate the uterus and left ovary and tube. With the aid of sight the indications were that we had a double uterus and corresponding appendage with which to deal. The difficulty experienced well illustrates how extensive must be an experience that enables one to know how to deal with all possible complications in pus surgery.

DR. STONE also presented a vermiform appendix which was removed from the same patient. The tube presented nothing very unusual in its appearance when exhibited, but was found distended with gas at the time of its removal, being quite double its normal size. The specimen was presented because it might serve to bring up the question, when to remove the appendix, when the abdomen is open for another operation.

He favored removal of the appendix when it was found distended or containing foreign bodies, or when there was found evidence of a former inflammation in that region. But he did not favor the removal of the appendix in every case because we have the opportunity to do so, as there was an element of added danger to the patient and especially so when an operation of an hour or more had already exhausted her strength.

DR. BOVÉE spoke of Dr. Hardon's remedy to move the bowels, viz., an ounce of alum to a quart of water as an enema. He had never seen it fail. When there was intestinal paralysis it was impossible to get the muscle fibres of the intestine to contract.

In discussing Dr. Bovée's specimen, DR. STONE said that it would appear that prompt operation is less frequent now than was the rule a few years since. 'Now we see specimens with fetus indicating a two, three or four months' pregnancy, but one rarely operates for or sees a case in the first four or six weeks of fetation.

DR. J. T. JOHNSON said that the pus tube shown by Dr. Stone was of most unusual shape and hard to diagnose before operation. He had not been in favor of removing the appendix in all his laparotomies. If there was reason to suppose that it might give trouble it should be removed. We had no legal or moral right to subject the patient to additional danger, when operating for another disease. Suits of malpractice had been brought for doing more than had been ordered.

DR. BOVÉE did not see much weight in such arguments. He never opened a woman's abdomen without permission to remove everything necessary. If we kept watch of the blood and the administration of the anesthetic we knew how far we might go in an operation and if we could safely remove the appendix, might do so, as it could be done in five minutes and added very little danger. He would take out an appendix if the patient was doing well, but even if the appendix was somewhat diseased, he would leave otherwise. He had found the appendix diseased if the ovary was diseased.

DR. FRY said we could not be bound by any hard and fast rule made before the abdomen is opened. He has recently taken out several apparently healthy appendices. He tried to leave a part

of a healthy ovary and it had become more and more his habit to remove the appendix if it was not hard to find. He had removed some grumbling appendices which looked comparatively healthy and his patients had been relieved of their symptoms. Robert I. Morris speaks of an involuted appendix and ones with small tumor as painful. He thinks the removal of the appendix, if the abdomen is open, good practice if done easily. Dr. Stone said the appendices hard to find were diseased. Dr. Kelley said he had done an exploratory operation for sterility, the patient making an uninterrupted recovery. Five weeks after he removed the appendix, which contained pus, the attack coming on suddenly after the patient had gone home.

DR. JOHN VAN RENSSLAER read a paper entitled

SEPTICEMIA WITH UNCOMMON SYMPTOMS.¹

Meeting of December 5, 1902.

The President, G. WYETH COOK, M.D., in the Chair.

DR. J. T. JOHNSON showed an appendix—chronic—with the right ovary and tube—the tube constricted. Also a small dermoid of the right ovary taken from another patient. He also reported a case of hysterectomy for fibroids which had an embolic pleurisy and milk leg in the calf and foot.

DR. I. S. STONE presented a large hematoma and a six weeks' fetus which he had removed from the right Fallopian tube of a patient, ten days since, by abdominal section. His patient was in extremely bad condition due to the presence of general infection and suppuration of both uterine adnexa, and in addition to this suppuration of the subperitoneal pelvic cellular tissue in almost every direction. The changed appearance and anatomical relations of the organs rendered the operation one of great difficulty and it was impossible to remove the extensive necrotic and suppurating surfaces. Besides the true pelvic complications the intestinal surfaces in contact with the tumor (?) were so greatly damaged that but little good could be expected from the operation, which was tedious and lengthy. The only hope lay in thorough drainage and in keeping up active stimulation. A quart of hot normal salt solution was administered by intravenous infusion soon after the completion of the operation, and gave a prompt and very satisfactory result. The patient had no symptom of alarming character until the end of the third day, when sepsis again manifested itself and double embolic pleuro-pneumonia set in, which would prove fatal in the near future. The case was presented by Dr. Stone to show how difficult it is to decide between cases suitable for operation by radical, and those best treated by tentative measures. Ten weeks since he had an almost precisely

¹See original article, p. 608.

similar case which he had opened and drained. The patient was apparently recovering, having run the gauntlet of pyemia and death from prolonged suppuration and its results. In the present instance he had decided to try the radical method, but would fail to save his patient, although death would result from sepsis rather than peritonitis.

DR. J. WESLEY BOVÉE presented a specimen of

DOUBLE PYOSALPINX AND DOUBLE OVARIAN ABSCESS

with the following history: Mrs. G., white, 21 years of age, was taken ill the latter part of June last with severe pelvic pain, constipation and dysuria. She was confined to bed in Sibley Hospital for a number of weeks and refused operation for an abscess of the womb. She began menstruating at the age of 15 years. The flow was usually regular, lasting two to three days, very painful, profuse and last occurred November 10. She suffered with continuous pain in the right iliac region, which was so severe as to require her to sit up two nights during the last menstrual period. Examination: Uterus fixed in retroversion; the right appendage fixed, much enlarged and fluctuating; the left smaller but high in the pelvis and fixed. She was sent to Columbia Hospital, where on the 2d instant an abdominal operation was performed. Adhesions to both appendages to an unusual degree were found. The right ovary, olive shaped, having diameters up to four inches, and fluctuating, and a tube much infiltrated and containing considerable pus and perforated in two places were found. The left appendage was in practically similar condition but the ovary not so large. There was a slight leakage from the left tube during removal. Both appendages were removed and two quarts of salt solution at a temperature of 118° F. left in the abdominal cavity. The left ovary, the smaller, was incised after removal, and pus unexpectedly evacuated. The right ovary contains quite a large amount of pus. In his experience the formation of pus in both ovaries and both tubes in separate sacs was unusual.

DR. BALLOCH asked Dr. Johnson whether it would not have been better to have removed the appendix in the second case, while the abdomen was open. Dr. Johnson said he saw nothing about it to indicate that it was or would be diseased. It would not, probably, have added greatly to the operation.

DR. C. BROWN MILLER said, in regard to Dr. Johnson's second case that the mass evidently was not appendicitis, because there were no adhesions about the appendix, but the pain was due to infection of the tube.

DR. BOVÉE asked if in Dr. Stone's case the pus was sub-peritoneal or was connected with the tube. Dr. Bovée said such cases as Dr. Stone had presented, with ectopic pregnancy, were caused by the frequent attempts to bring on an abortion with some short instrument which forced the cervix or vagina between the uterus and the bladder, which was infected, causing adhesions between

these organs. Pus collections were frequently more easily removed by extirpating the uterus and draining through the vagina or cervix. It was not wise to put sutures in the mucous membrane of the bladder, as it favored a deposit of calculi. In regard to thrombosis Dr. Bovée said he did not see why a clot might not be carried to one part of the body as well as another, but it was easier to diagnose it if near the surface. If the thrombotic material was septic the condition would be septic. Dr. Stone said it was hard for him to account for the burrowing of the pus as the uterus was comparatively healthy. He always used separate layers in repairing a vesico-vaginal fistula, and another suture in the bladder.

DR. E. E. BALLOCH read the paper :

PRURITIS VULVÆ AND ALLIED CONDITIONS.¹

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of February 4, 1903.

The President, DR. PETER HORROCKS, in the Chair.

DR. EDEN showed a specimen of

FETAL ASCITES.

The history of the labor was as follows: The patient, an unmarried primipara, aged eighteen, was admitted to one of the workhouse infirmaries in London on January 17, 1903, having then been for some hours in labor.

On admission, it was noted that the external os was about the size of half a crown, the membranes were ruptured and the presentation was a footling.

Pregnancy had advanced to about the end of the eighth month. The progress of the labor was very slow, and on the morning of January 18th the practitioner in charge of the case administered one drachm of liquid extract of ergot with one ounce of brandy, and repeated the dose twice during the course of the day. At 8 P. M. he found on examination the foot of the child in the vagina; in his own words it was "quite black and putrid."

He made traction upon the limb to deliver the breech, but the foot separated at the ankle. He then seized the remainder of the limb, which soon separated at the hip joint. Traction upon the

¹See original article, p. 613.

other leg failed in the same way. He then attempted to seize the breech with a pair of craniotomy forceps, but, in his own words, "Every time traction was made, they came away with a piece of putrid skin." Being unable to make out the cause of obstruction, he sent for assistance. On examining the patient, the first thing that struck one was the large size of the uterus; although labor was a month premature and part of the body of the fetus had been delivered, the uterus was quite as large as an ordinary full-time pregnancy. The patient felt no pain, but the uterus was firmly molded around the fetus, the parts of which could not be felt.

Upon vaginal examination there was some difficulty in recognizing any anatomical landmarks in the presenting part; but at length the sacrum was made out lying high up posteriorly. It was therefore clear that the distended abdomen formed the presenting part and was the cause of the obstruction to delivery. It was opened with a pair of scissors, and between two and three quarts of thin yellowish fluid escaped. The body of the child was delivered naturally within a few minutes. The placenta was adherent and had to be removed by the fingers. The body of the fetus showed marked signs of maceration. On laying the abdomen open, the peritoneal cavity was seen to be enormously enlarged; the liver, stomach and intestines were crowded into the vault of the diaphragm; there were no peritoneal adhesions and no sign of peritonitis in any part. The bladder was distended to a moderate extent; the external genitals were absent, having been torn away by the forceps during the unsuccessful attempts at delivery. A probe, passed from the bladder into the urethra, showed this channel to be impervious. From the absence of the uterus it was clear that the sex of the fetus was male. The heart was normal in all respects; owing to its macerated condition, the liver and portal circulation could not be thoroughly examined, but appeared normal. There was no distention of the ureters and the kidneys were normal. The cause of the ascites in this case remains obscure.

DR. BALLANTYNE (Ante-natal Pathology) speaks of peritonitis and syphilis as the commonest causes. The former can in this case be excluded, and although exclusion of syphilis is a more difficult matter, there was no positive evidence of its existence in either parent. It is curious that only one case has been recorded, in which fetal ascites was caused by portal obstruction; it was recorded by Dr. Herman in 1881, the cause of the obstruction being a tumor of the adrenal body.

The association of ascites with distention of the bladder appears to be common, for Dr. Ballantyne has collected fifty-eight cases in which these conditions co-existed.

The patient made a good recovery.

DR. HERBERT SPENCER had met with about six cases of fetal ascites. In some of these the amount of fluid was small, but there was a large amount of lymph binding the intestines together and the absence of any obvious cause for this peritonitis and the pres-

ence of bone disease and the history had led him to think that in these cases the ascites was due to syphilis; but in other cases where there was a large quantity of fluid present, as in Dr. Eden's specimen, he had not been able to discover the cause of the effusion.

DR. MALINS said that the specimen exhibited was interesting for two reasons, the difficulty in diagnosis and the probable origin of the large accumulation of fluid in the peritoneal cavity.

Sir James Simpson, many years ago, called attention to this form of embarrassment and mentioned some cases of its occurrence. Dr. Malins remembered one instance in which similar difficulty in delivery had happened; in this instance the origin of the fluid was at the time believed to be due to tubercular disease.

The evidence of syphilis and the manner in which it acts in the production of this condition is not easy to obtain or to prove. He was inclined to think that it was adduced generally in the absence of other known or ascertained causes.

The case was also discussed by Dr. Hubert Roberts and the President.

DR. SEIKES brought forward a short communication on a case of profuse meningeal hemorrhage during labor, and this was discussed by Dr. Herbert Spencer and the President.

DR. RUSSELL ANDREWS read the notes of a case of primary carcinoma of the Fallopian tube and some interesting points in regard to the disease were brought forward by Mr. Alban Doran and Dr. Inglis Parsons.

MR. HANDLEY showed a specimen of a solitary interstitial fibroid removed by abdominal myomectomy, and Dr. Inglis Parsons read the notes of an unusual case of sarcoma of the ovary.

The business of the annual meeting was then transacted.

Meeting of March 4, 1903.

The President, DR. MALINS, in the Chair.

DR. HUBERT ROBERTS showed microscopical sections of a case of

TUBERCULOSIS OF THE FALLOPIAN TUBE AND OVARY,
removed by operation from a lady of thirty-two.

The patient had been in failing health since 1899. In December, 1902, she was much worse with irregular uterine hemorrhage, fever and wasting. A considerable tumor was found in the lower abdomen. On opening the abdomen, both tubes and ovaries were enlarged. The left ovary was 4-5 inches long and adherent to a necrotic ovary, the size of one's fist. The pelvis was roofed in by dense adhesions, and the intestines were adherent to the tubes and back of the uterus. Both tubes were banana-like in shape, and contained pus. Sections of the uterine end of the tube showed distinct tubercular nodules, giant cells and breaking down caseous areas. The ovarian tissue also contained tubercle nodules.

The patient sank in 36 hours from shock. The question of the advisability of abdominal section in such desperate cases was discussed. Tubercular pyosalpinx pointing in the vagina could easily be opened and drained by that route, as in another case under the author's care, though, of course, the tubes could not be removed. In such cases abdominal section might be undertaken, when the patient's condition allowed of it.

DR. WALTER SWAYNE said that three months ago he had to deal with a case which presented many features similar to those described by Dr. Horrocks.

The patient had a large mass in the pelvis and much distension of the abdomen, which contained fluid; on opening the abdomen, the whole of the peritoneum was studded with what to the naked eye was apparently miliary tubercle. The appendages were embedded in exudation, which formed the mass felt in the pelvis, and the peritoneum was full of ascitic fluid; it was obvious that removal of the appendages was impossible, and the wound was closed after flushing the peritoneal cavity with a hot saturated solution of boracic acid.

The patient made a good recovery, and at the end of a month had put on several pounds in weight.

DR. LEWERS showed a specimen of

KERATINISING CARCINOMA

of the body of the uterus.

The patient from whom the specimen was removed was a single woman, aged forty-three. She had suffered from metrorrhagia for two years, and from some pain about the lower abdomen, which came on some time after the commencement of the bleeding. The cervix was dilated and a malignant growth found in the body of the uterus. There was a lump felt to the right of the uterus, the size of a tangerine orange.

Abdominal pan-hysterectomy was performed on Nov. 27th, 1902, in the London Hospital.

The lump to the right of the uterus proved to be the right ovary enlarged, partly by cystic change, and partly by a malignant growth, secondary to that in the uterus. The ovary was not adherent, and there was no evidence of an other secondary deposit elsewhere.

As regards the operation, the case illustrated the advantages of the abdominal operation, especially since the exact nature of the lump to the right was ascertained at the very beginning of the operation, instead of towards the end of it, as would have been the case, if vaginal hysterectomy had been performed. The patient made a good recovery.

As regards the specimen, the growth was a columnar-celled carcinoma, but over a considerable extent it had become keratinised, so that in parts of the sections the appearances were very similar to those of squamous carcinoma of the cervix.

MRS. BOYD, M.D., in reference to the association in Dr. Lew-

ers's case of carcinoma of the body with carcinoma of the ovary, mentioned a similar case, where she had removed by abdominal pan-hysterectomy a large uterus, the seat both of fibroids and cancer of the body, from a middle-aged lady. The right ovary contained a secondary growth and was non-adherent and easily removed with the uterus.

No other secondary growths were discoverable.

The patient died some six months later with cerebral symptoms. There was no evidence of local recurrence, or of involvement of abdominal glands.

DR. CULLINGWORTH said that Dr. Lewers's case and the one to which Mrs. Boyd had referred, had a special interest for him at that moment, as he had that very morning operated upon the second case of the kind that he had met with within the last two years. Both cases had occurred in his private practice, and were, so far as he could remember, new in his experience.

In both patients there was evidence of new growth in the lateral parts of the pelvis, for which abdominal section was performed, but in each case there was irregular uterine hemorrhage of such character and extent as to make it seem desirable to dilate and curette the uterine cavity before opening the abdomen.

In the case of the first patient, an ovarian cyst with some obviously malignant papilloma, was removed, the scrapings from the uterus being meanwhile sent for examination and report.

The report being to the effect that the uterine disease was carcinoma, the uterus was removed by vaginal hysterectomy a fortnight after the original operation. There was found to be extensive carcinoma of the body of the uterus. The patient was at that moment, 18 months after the operation, free from any sign of recurrence.

In the case of the second patient, the preliminary curetting was so conclusive as to the existence of carcinoma of the body of the uterus, that the microscopist's report was not waited for, and a week after the first operation, at which both ovaries were removed for soft, rapidly-growing and already degenerating cystic carcinoma, the uterus was removed by the combined abdominal and vaginal method. The only reason why the uterus was not removed in the first instance was that the patient, when curetting had been done and the universally adherent tumors of the ovaries had been removed, showed signs of having had as long an operation as was compatible with her safety.

Dr. Lewers had spoken of the ovarian disease being in his case secondary to the uterine. He (the speaker) would like to hear upon what evidence that opinion was based.

In the earlier of his own cases, the Reporter of the Clinical Research Association expressed the opinion that the ovarian disease was in that instance primary and the uterine secondary.

In the second case, the one now under treatment, it seemed to him very difficult to say which was primary—the ovarian disease or the uterine.

DR. RUSSELL ANDREWS said that Hitschmann of Vienna, who had been studying the histology of carcinoma of the body of the uterus for some time, found that metaplasia, change from columnar to squamous epithelium, was comparatively common in this condition.

Dr. Andrews had seen a good many sections showing this change, but none in which it was so marked, as in Dr. Lewers's specimen.

DR. GALABIN showed a specimen of partial

VESICULAR DEGENERATION OF THE PLACENTA,

in conjunction with a fetus of five months, which lived up to the time of delivery.

He saw the patient in consultation with Dr. Morgan Hearnden. She was thirty-two years old, had had four previous pregnancies, twins once. In the earlier months of the pregnancy, she suffered from sickness. For three weeks she had appeared very ill, with weakness, cardiac symptoms, and rapid pulse, and the abdomen had increased rapidly in size. The pulse was 120.

The abdomen was found nearly as large as at full term of pregnancy. The uterus contracted as usual, and there was no rigidity nor evident tension. Contents seemed mainly fluid, but signs of a living fetus were made out with some difficulty. The finger was passed in through the cervix, and felt the membranes and fetus. Patient looked ill, but not pallid enough to suggest hemorrhage.

DR. GALABIN thought the case was probably one of hydropsam-nii. He advised induction of labor, and tried on the spot to separate the membranes around the os. The result was that labor pains came on the same night. Next morning, Dr. Hearnden ruptured the membranes, and an enormous quantity of blood and clots was expelled.

The patient became alarmingly collapsed, but eventually rallied. A number of vesicles came away with the blood. The placenta was cleared out of the uterus by hand. The placenta showed scattered vesicles pretty uniformly throughout, but a large proportion of sporionic villi remained normal. Its uterine surface was completely broken up, no continuous deciduous serotina being visible. The larger vesicles which escaped separately were mostly about half an inch in diameter.

The patient recovered well, and has had no return of hemorrhage, nor indicated suspicion of deciduoma malignum. It was remarkable that not a drop of blood escaped externally, though the patient had what was probably a concealed accidental hemorrhage, going on for three weeks.

The *President* delivered his inaugural Address, detailing some aspects of the economic and of the antenatal waste of life in nature and civilization.

A vote of thanks to the President for his valuable and interesting Address was moved by DR. WATT BLACK, seconded by DR. HORROCKS, and carried by acclamation.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Pregnancy and Chronic Heart Disease.—Cuthbert C. Gibbes (*Clin. Jour.*, Jan. 7, 14 and 21) summarizes the changes in the cardio-vascular system which normally accompanies pregnancy as follows: (1) Vascular area is increased in consequence of the development of uterine blood-vessels and the dilatation of those in the surrounding tissues. (2) The quantity of blood is increased during the later months of pregnancy. (3) The quality of the blood is altered. (4) The arterial tension is increased during pregnancy and the puerperium, but the greatest tension is during labor. (5) The systemic and pulmonary veins become engorged, especially those of the lower extremities. (6) The heart becomes enlarged owing to dilatation and hypertrophy. The left ventricle is more hypertrophied than the right, while the right ventricle is most dilated. During the first stage of labor the heart is little effected beyond quickening its action. In the second stage during the expulsive pains the right side of the heart is quickly over disturbed. (7) The tension of the pulmonary blood-vessels is much increased. (8) The kidneys become enlarged and all the solids in the urine, with the exception of the chlorides are diminished. (9) The thyroid gland, liver, and spleen become somewhat enlarged.

The author does not believe that pregnancy, by itself, causes acute or chronic heart disease. The prognosis of chronic valvular disease depends mainly upon two points: the position in life of the patient, and the condition of the heart muscle, the nature of the valvular lesion being a minor consideration. Commencing with the least dangerous valvular lesion, they bear the following relations: mitral insufficiency, aortic insufficiency, aortic stenosis, mitral stenosis, aortic and mitral insufficiency, and aortic insufficiency and mitral stenosis combined. Failure will, as a rule, occur earlier in each successive pregnancy. When the pericardium is adherent there is more danger to life than in valvular disease.

The question of marriage in chronic heart disease is very difficult to decide. It is best to find some consultant in whom the parents have confidence, and let him decide. In sanctioning marriage it must be borne in mind that no form of heart disease will stand many pregnancies, especially if they occur in rapid succession. In mitral insufficiency Gibbes recommends marriage more freely than in any other form. In aortic stenosis marriage should not be recommended unless the narrowing is inconsiderable and compensation sufficient. In aortic insufficiency marriage should only be sanctioned when the regurgitation is not free and arterial degeneration is absent, compensation sufficient and no evidence that failure has previously occurred. Mitral stenosis is generally considered to be the most serious form of valvular disease in

pregnancy. Marriage ought never to be sanctioned if compensation has seriously failed.

When compensation has failed, but at the time of examination the compensation is effective and no complications are found, it is advisable to make repeated examinations of the urine. The condition of the kidneys being of great importance. When albumin is found advise against marriage. When mitral insufficiency is secondary to aortic disease, when primary degeneration of heart-muscles exist and when there is an adherent pericardium marriage should be forbidden.

The fundamental rules in treating pregnant women with heart disease are: First, Promote the general health of the patient. Second, Avoid unduly taxing the heart, and third, furnish the heart with as pure blood as possible.

During labor efforts should be made to relieve the heart. In the first stage bearing down should be avoided. If the heart shows any signs of flagging, ether or strychnine should be administered. Artificial dilatation of the os must often be resorted to, and in any case an anesthetic should be administered and forceps applied as soon as the os is fully dilated. Any post partum abdominal pressure should be avoided as it does away with the relief to the over-distended right ventricle obtained by the delivery of the child. It is never advisable to hurry the removal of the placenta, but rather to allow free hemorrhage to take place, for these cases die far oftener from too little hemorrhage than from too much.

Lactation is generally forbidden, as it keeps up the cardiac hypertrophy.

Auto-Intoxications of Pregnancy.—H. O. Nicholson (*Scot. Med. & Surg. Jour.*, March) finds that thyroid extracts possess a definite action in favoring the elimination of the solid constituents of the urine. These substances he regards as the cause of auto-intoxication and subsequent convulsions. When eclamptic symptoms are impending, or have actually appeared, the amount of urine secreted may be nearly normal, but the solids are greatly reduced. To increase the elimination of the solids he gives thyroid extract until he gets the full effect upon the circulation.

In cases of normal pregnancy, where slight symptoms of auto-intoxication may possibly develop from an excess of proteid food, thyroid extract may be administered to anticipate more serious trouble.

Operation for Extrauterine Pregnancy with Living Child.—Fifteen cases of operation for extrauterine pregnancy with living child have been compiled by A. Sittner (*Zent. für Gyn.*, No. 2). Seven were operated upon before the fetus had reached the period of viability, the remaining eight at the thirty-fifth, thirty-sixth, fortieth and forty-eighth weeks of pregnancy. Of the children of

these eight cases, three died within from two hours to a few days, one of gastroenteritis after three weeks. The four which lived were large children. For this reason the writer would defer operation until near the normal end of pregnancy. He would, however, avoid postponing it until the last two or three weeks on account of the increased danger of rupture of the sac if pains begin. In one of the cases reported, a beginning rupture was discovered at operation.

Treatment of Contracted Pelvis.—Arthur von Magnus (*Monats. für Geb. u. Gyn.*, Bd. XVII., H. 2 and 3) discusses this subject at length. In primiparæ with slightly or moderately contracted pelvis he waits for spontaneous birth of the head. If during labor, it is necessary to terminate the delivery on account of either mother or child, he would apply high forceps to the head arrested at the brim. When ten or twelve tractions fail, perforation is indicated, unless the mother urgently desires a living child, when symphyseotomy is preferable from the standpoint of the fetus. If the head is movable above the inlet, with dilated cervix, and unruptured membranes, or membranes recently ruptured, version and extraction are advised. In multiparæ with pelvis 9.75 to 8 centimeters, he also waits for spontaneous delivery, as the head will pass through the narrowed pelvis in three-fourths of the cases. If after dilatation of the cervix the head shows no tendency to come through the inlet, version and extraction should be performed. The length of time one should wait for spontaneous delivery depends upon the efficiency of the pains, the degree of stretching of the lower uterine segment, and the position of the contraction ring. In general, one should not do a version more than ten hours after rupture of the membranes. If the head remains at the inlet high forceps should be tried before perforation of a living child. In multiparæ with pelvis of 7.9 to 7 centimeters labor should be induced between the thirty-fifth and thirty-seventh weeks. At the end of pregnancy if spontaneous delivery is impossible perforation is required except when a living child is greatly desired, and then symphyseotomy or Cesarean section should be employed.

Lateral Section of the Pelvis.—Two cases of lateral section of the pelvis as suggested by Gigli, with perfect results for both mother and child are reported by Ernst Pestalozza (*Zeit. für Gyn.*, No. 4). Comparing these with seven symphyseotomies which he has done, he favors the former procedure as giving practically no hemorrhage and rapid and solid union of the divided pelvic girdle after the operation.

Cord Around the Neck.—A. Brindeau (*Bull. de la Soc. d'Obst. de Paris*, Dec. 18, 1902) records three cases of death of the fetus before labor began, caused by the cord being wound

tightly around the neck three or five times. There were severe pains in the lower part of the abdomen before dilatation of the cervix began. This should always suggest a cord around the neck, with traction upon the fundus by the shortened cord, when the uterus contracts. Such traction may result in localized pain at the point of attachment of the placenta.

Hydatiform Mole.—Palmer Findley (*Am. Jour. Med. Sci.*, March) notes that nothing definite is known of the cause of hydatiform moles. They most frequently occur between the ages of twenty and thirty and are two and one-half times as frequent in multipara as in primipara. The weight of evidence is in favor of a maternal origin, the vascular degeneration of the chorionic villi resulting from a disturbed maternal circulation. Failure of circulation causes a degeneration of the connective tissue stroma of the villi and serous infiltration. The syncytium and Langhan's cells penetrate deeper into the decidua, which accounts for the unusual proliferation of these epithelial elements in hydatiform mole.

There is no proof that cystic degeneration of the ovaries has any influence upon cystic degeneration of the ovum. Malignant degeneration of hydatiform mole occurs in about 16 per cent of all cases. No sharp line can be drawn between benign and malignant hydatiform moles. Syncytial invasion of the connective tissue stroma of the villi and of the uterine musculature occurs under normal conditions and can not be regarded in hydatiform mole as evidence of malignancy unless found to a marked degree. It follows that a macroscopic and microscopic examination of discharged vesicles will not determine the benign or malignant character of a mole. The length of time a mole remains in utero does not influence its disposition to become malignant. The diagnosis cannot be made without seeing the vesicles; these are seldom expelled until abortion is in progress. The most constant clinical evidence is the rapid development of the uterus, irregular in shape and consistency. To avoid malignant degeneracy our only safeguard lies in early recognition and immediate removal. Ergot and vaginal tamponade will control the hemorrhage and will often excite the uterus to contract and expel the mole. The curette should not be used. After the mole is expelled always explore the uterus with the fingers, irrigate and pack with anti-septic gauze.

Two weeks after the birth of the mole curette the uterus and examine the scrapings for syncytial invasion and if found in the act of proliferating hysterectomy should be performed. Watch the patient for three years after the expulsion of the mole. If uterine hemorrhage occurs curette and examine the scrapings microscopically. All new growths in the vagina and lungs are to be regarded with suspicion.

Maternal mortality in hydatiform mole is 25 per cent. It is the exception for more than one hydatiform mole to develop.

Elephantiasis Congenita Cystica.—John B. Hillier (*Jour. Obst. & Gyn. Br. Emp.*, Feb.) describes two cases of congenital elephantiasis. The first fetus was an acardiac monster—a parasitic twin. It was affected with hydrocephalus, cystic elephantiasis and general dropsy. It had developmental defects in anterior thoracic wall and in extremities, with great defects in internal organs, heart, lungs, liver and spleen being absent; kidneys rudimentary, and alimentary canal imperfectly developed.

The second had also cystic elephantiasis, absent upper extremities and rudimentary development of face and skull.

Etiology and Treatment of Puerperal Eclampsia.—E. Hubert (*Bull. de la Soc. Belge de Gyn. et d'Obst.*, T. XIII., No. 3) presents the following views in a report to the Belgian Gynecological and Obstetrical Society. Albuminuria is caused by any obstruction to the circulation of blood in the kidneys, for example compression of the vessels and ureters by the pregnant uterus. Although the influence of pregnancy upon albuminuria is evident only forty-two per cent of the cases of albuminuria end in eclampsia. On the other hand eclampsia may occur without albumin in the urine or renal lesions. A kidney sufficiently diseased to allow albumin to pass through may continue to eliminate the toxins causing convulsions, yet there are poisons of which even a healthy kidney cannot purify the blood. Albuminuria does not become eclampsia until it is accompanied by intoxications. Urea, ammonium carbonate, oxalic acid, coloring matters have been supposed to be the toxic substances concerned, but to cause convulsions experimentally it is necessary to inject all of these in much larger quantities than those in which they are found in eclampsia. No bacterial intoxication has been proven. Seven varieties of toxins have been isolated. Ptoamines are apparently the cause in some instances. To summarize: There may be as many kinds of intoxications of pregnancy as there are varieties of puerperal infection. Whatever the poisons may be, they attack the nerve centers and prepare the subject for reflex manifestations upon the slightest irritation. Concerning the treatment Hubert writes that at least in primiparæ the urine and blood should be systematically examined, and in all pregnant women the functions of the liver, kidney and intestines should be supervised. Attack the evil at its root. Gastric lavage will remove one source of auto-intoxication. Baths and heat stimulate the superficial circulation and make the skin relieve the overworked kidneys. An absolute milk diet combats hepatic troubles and toxemia. If these fail more severe measures at hand are bleeding, drastics, sudorifics, and injections of normal saline solution which dilutes the blood and replaces the toxic serum removed by bleeding. Diuretics are contraindicated by the condition of the kidneys. Until the child is viable abortion should not be induced; after that period premature labor should be brought on if general dietetic and symptomatic measures fail. If there is only albuminuria this will not cause convulsions; if

there is toxemia it may. For this reason it is well to operate under anesthesia. The circumstances may be so urgent as to require accouchement forcé, and if this is too difficult or slow to obtain by manual dilatation or insertion of bags Cesarean section is preferable to Dührssen's vaginal section. In the attacks the tongue should be protected by a handkerchief between the teeth. The woman is placed in the prone position so as not to inhale saliva and in order to relieve the large abdominal vessels of pressure by the uterus. No unnecessary restraint is to be employed, as it only irritates still further. The hot pack, purgation, bleeding, saline injections may be indicated. Large vulvar infiltrations predispose to gangrene and require acupuncture. Although the urine is generally scanty the bladder must be watched as distention sometimes causes convulsions. If labor has begun we hasten it under anesthesia by manual or instrumental dilatation and extraction of the child, as soon as possible; rarely Cesarean section is preferable. If the second stage is completed, we anesthetize and remove the placenta. In the puerperium accidents are common. Bichloride douches are dangerous on account of the renal condition. Chloral decomposes in the blood into chloroform and produces an anesthesia which cannot be regulated at will. Morphine and chloroform by inhalation are therefore preferable. Emetics depress the nervous system, cause purgation and sweating, and relax the cervix. Their use seems rational, especially when rigidity or hyperesthesia of the lower uterine segment appears to be the cause of convulsions. Veratrum viride, though empirical, deserves trial.

Eclampsia.—G. R. Adams (*Intercol. Med. Jour., Austral.*, Dec. 20), when convulsions have set in, is guided by these indications: (1) Aid elimination, and if possible dilute the toxin; (2) control the convulsion, and (3) empty the uterus.

To accomplish the first he advises the installation of saline solution. When the tension is extreme venesection acts rapidly, but its effects are transient. Veratrumviride, chloral, nitro-glycerine, chloroform inhalation and morphine give more permanent results.

To control the convulsions nothing affords more satisfaction than chloroform inhalation, but it tends to increase the tendency to edema of the lungs. Morphine in large doses is also valuable.

The author advises the evacuation of the uterus as soon as possible.

Achondroplasia in the Fetus.—Constantin Daniel (*Ann. de Gyn. et d'Obst.*, Jan.) describes and discusses a case of fetal achondroplasia. The breach presented and the vault of the skull was torn off during extraction of the after-coming head, although no strong traction had been employed. The existence of hydramnios and a large syphilitic placenta appear to confirm the etiological relation existing between syphilis and the majority of heredo-dystrophies.

Hysterectomy for Puerperal Infection.—In discussing this subject T. Tuffier (*Rev. Mem. de Gyn., Obst., and Ped. de Bordeaux*, T. IV., No. 10) says that the indication for this operation must be furnished by the entire complex of symptoms presented. If the woman is apparently doomed in spite of intrauterine douches, curettage, subcutaneous injections of salt solution, etc., and the appendages and peritoneum are not involved, the uterus large and soft either with or without a fetid discharge, and the woman sufficiently strong to bear the operation, hysterectomy is justifiable. There are no hard and fast indications for its performance. The results are questionable and the mortality large as only extreme cases are subjected to this treatment. The route is unimportant, but while the vaginal is convenient in many cases the softness and vascularity of the tissues soon after delivery make the abdominal preferable at that time.

O. Macé (*L'Obstétrique*, Jan.) publishes a most pessimistic review of recent opinions upon the treatment of puerperal infection by hysterectomy. Among the absolute indications acknowledged generally he includes: Retention of fetal remnants after labor or abortion when some cause such as uterine retraction or multiple uterine fibroids prevents their removal, rupture of the uterus, gangrene of the uterine wall, instrumental perforation of the uterus, putrefaction of fibroids, cancer of the uterus, fetal putrefaction with persistence of symptoms after cleansing, hydatidiform mole which it is impossible to remove thoroughly. Bacteriological examination of the blood furnishes no sure guide, nor does that of the lochia. Requier believes that saprophytic infection is long local and that injections suffice; that gonorrheal infection requires antiseptic uterine douches. He does not advocate operation even for streptococcus infections. As Tuffier says no single sign on the part of the uterus, general condition, temperature, pulse, etc., absolutely indicates the necessity for hysterectomy. The paper closes with a statement of the unfavorable results already obtained.

Quadruple Pregnancy.—Marcel Baudouin (*Gaz. de Gyn.*, Nov. 22) describes a case of quadruple pregnancy in a multipara, with certain unusual features. There were apparently two ova. The first placenta showed partial division into three portions, and its single bag of membranes enclosed three feminine children, a still-born double sternopagus, which caused the dystocia, and a living child. The second ovum furnished a male child which was still-born. The placenta and membranes were single.

Physiological Causes of Diminished Birth Rate in France.—Pinard and C. Richet (*Ann. de Gyn. et d'Obst.*, Jan.) have investigated the subject of "race suicide," in France in an effort to determine the underlying physiological causes. The number of marriages in France is no lower than in other countries. The low birth rate is due to the small average size of the household. Of one thousand families, 171 have no child, 249 have one, 224

have two children, 150 have three, 93 have four, 55 have five, 31 have six, and only 27 have seven or more. These figures include only living children and so do not show the actual fecundity. Making allowance for this the writers place the proportion of sterile families in France at from ten to thirteen per cent. The principal cause of this sterility in France as in other countries is the after-effects of venereal diseases, which, though apparently cured, leave behind pathological conditions causing sterility. The only remedy for the diminution of the birth rate in France is therefore a change of sentiment which will lead the fertile families to desire more children than they do at present.

Cesarean Section for Placenta Previa.—P. E. Truesdale (*Bost. Med. and Surg. Jour.*, April 2) believes Cesarean section to be the best treatment for complete or partial placenta previa, when the child is viable, and when the diameters of the pelvis or the conditions of the soft parts render the operation of dilatation and version, performed with sufficient rapidity to save the child, a dangerous procedure for the mother. He reports a case so treated, the mother being saved, but the child died a half hour after delivery.

Intravenous Injection of Formaldehyde.—William L. Baner (*N. Y. Med. Jour.*, Mch. 21) believes that from the available facts it is improbable that formaldehyde used intravenously has a specific value in septicemia. The good results obtained in cases so treated have been due to the dilution of the poison by the fluid injected. Normal saline solution by the same route will do this equally well, and with less probability of injuring the delicate structure of the blood.

GYNECOLOGY AND ABDOMINAL SURGERY.

Pessaries.—In a paper on the treatment of retrodisplacements Gallant (*Phil. Med. Jour.*, May 2), after calling attention to the fact that pessaries should never be used where there is a posulent vaginitis, fixation of the uterus, ovaries or tubes, postubes, pelvic exudates, cysts or other neoplasm or any marked inflammation of the pelvic tissues, says: Having by preliminary local treatment eliminated all pelvic tenderness and secured the necessary mobility, the successful use of a pessary will then depend upon the good judgment displayed in selecting one of an appropriate style and size, modified to the proper shape, introduced in the least disagreeable way, removed and cleaned at regular intervals and worn continuously so long as the patient and her husband are unconscious of its presence. For virgins, after manual dilatation under anesthesia, in nulliparous and married women, the Hodge or Albert-Smith pessary will answer all purposes. Women who have borne children and who have relaxed pelvic floors and lacerated perinei, first or second degree, with more or less rectocele and vesicocoele, require a pessary which has

been widened, shortened and a less acute angle. Some with extreme relaxation or gaping of the vulva must be supplied with a round, solid rubber ring, or a hard or soft hollow rubber pessary. The latter variety is objectionable on account of the disagreeable odor generated, liability to irritate the vagina, and that, after being worn for a month, they are unfit for further use.

To determine the size and shape of a pessary, introduce two fingers within the canal (patient on her back) and note (1) the width of the posterior portion of the pubic arch; (2) separate the fingers, determine the width of the midvaginal canal; (3) the length from the pubic arch to the apex of the posterior fornix when the cervix is pushed backward and the fundus forward; and (4) make a mental note of the curve while the uterus is held in this position.

A solid rubber pessary, after being heated in boiling water, can be moulded to almost any shape, but if allowed to remain in the boiler it will revert to its original round ring shape. While hot, shorten, widen, straighten and immediately dip in cold water to fix it.

Some years ago, Gallant, while removing pessaries, noticed that in several instances the instrument had reversed its position and lay within the vagina "end for end." A little thought and a few trials brought the conviction that this position is the most logical way to place a pessary, as the broad end conforms more closely to the posterior surface of the symphysis, retains its position better, does not slip between the labia and, whenever the patient makes any straining effort by raising the vesicovaginal septum tends to relieve vesicocele. The narrow end engages the cervix more snugly, prevents wobbling and fits the posterior fornix better than the broader extremity, gives more comfort, maintains its position, supports the uterus and, unless the perineal floor is very lax, cannot come down. The lower end being well behind the symphysis, it cannot interfere with marital relations.

The introduction of the pessary can be most easily accomplished when the patient is in a recumbent position, less readily in the Sims' or the knee-chest position. To insert the instrument (1) place the index finger of the left hand within the hymen, press the perineum well backward; (2) hold the pessary by its broadest end between thumb, index and middle fingers of the right hand, convexity toward the patient's right thigh, enter the pessary sideways two-thirds of its length through the vulvar slit; relax hold on the lower end, and, with the right index finger against the upper bar, carry the pessary along the right vaginal wall and rotate it posteriorly so that the cervix slips within the upper end.

When the pessary is in position (a) the vaginal wall should never be tense; (b) the lower bar must lie just behind the symphysis, invisible at the vulva; (c) it should be somewhat movable up and down and free from discomfort during coitus; (d) the wearer should not at any time feel conscious of its presence; (e) it must be removed at the end of the first week and the vagina

examined for pressure points or any signs of irritation, it should then be replaced, and again removed at least once every four weeks, cleaned, polished with a dry towel, and reinserted; (f) the wearer must use daily a warm douche, to which may be added a tablespoonful of common salt, or two teaspoonfuls of sodium bicarbonate. These vaginal douches are of service only for cleansing purposes. Vaginal douches for the reduction of pelvic inflammation are injurious if not continued for at least 20 minutes, whereas rectal injections or continuous irrigations for an hour, once or twice daily, will exert an almost marvelous effect on recent pelvic inflammation, and in alleviating pain and tenderness, and for removing exudates in the old cases. For rectal injections use 2 quarts of water at 120° F. to which have been added 2 oz. hamamelis; the patient lying upon her right side, her hips raised as high as possible and the legs flexed upon the abdomen; allow the mixture to run in slowly, a few ounces at a time; encourage her to retain it as long as possible and lie still for an hour. In many instances the whole 2 quarts will be retained and will do her good. For continuous irrigation Kemp's tube has afforded the most satisfactory results.

It is always wise to inform your patient that a pessary will but rarely cure uterine displacement, but will afford symptomatic relief as long as it is worn and properly cared for.

Gynecological Importance of Movable Kidney.—W. F. Victor Bonney (*Ed. Med. Jour*, Dec.) finds that the earliest and most constant symptom of an injuriously movable kidney is a dull, aching pain in the back, and very often this is the only symptom present. This pain varies greatly in intensity. The pain corresponds to the upper lumbar vertebræ and radiates transversely around the waist, on the side of the offending organ. In some cases the pain radiates downward along the outer half of the front of the abdomen and thigh. It has a tendency to remit; is aggravated by constipation and is often worse during the menstrual period, but its distinctive feature is complete relief upon assuming recumbency.

The three most common causes of pelvic pain are backward displacements of the uterus, prolapse, and disease of the appendages.

The pain of retroversion and retroflexion is referred to the sacrum and there is often further pain radiating outwards across the front of the lower abdomen and parallel with Poupart's ligament. This pain is modified by dorsal decubitus, but not entirely relieved.

The pain due to prolapse is primarily referred downwards through the vagina and is of a "bearing down" character. The pain is also referred to the sacrum and lower abdomen. It is instantly relieved by recumbency.

The pain due to chronic disease of an appendage is felt in the lower abdomen, radiating outwards, parallel with Poupart's ligament, and is conspicuously not modified by recumbency. Indeed,

it is often worse at night. In examining women for the cause of alleged abdominal pain, it is very important to investigate the condition of the kidney.

Transverse Congenital Occlusion of the Vagina.—Samuel M. Brickner (*N. Y. Med. Jour.*, March 7) finds that in about one in five thousand cases we find a transverse septum of the vagina. They are derived from an inclusion by Müller's ducts of cells from the Wolffian duct or ducts after the formation of the genital cord, and are therefore epiblastic in origin. Their perforation is proof of the normal conduct of Müller's ducts in all other respects. Transverse septa of the vagina being normal in adult sheep, whales, dugongs, the manates and chimpanzee, they represent in the human being a reversion, a return to an ancestral type. Their function is purely speculative, but may have to do with facilitation of conception. The treatment consists in excision of the septum and suturing the cut edges.

Laparotomy for Tuberculous Peritonitis.—The conclusions reached by E. Lanmers (*Bull. de la Soc. Belge de Gyn. et d'Obst.*, T. XIII., No. 3) from thirty-two cases of tuberculous peritonitis treated by laparotomy are that an operation is indicated in the ascitic form, in which it has given him 92 per cent of cures. In the dry forms, ulcerative or fibrous, laparotomy is indicated only when there are symptoms of compression or occlusion, or severe pain, or the formation of a pyo-stercoral abscess.

Changes in the Uterus in Acute Infectious Diseases.—From the findings at autopsy and the bacteriological and histological examination of twenty-four cases, of which sixteen gave positive results, Chr. Stravoskiadis (*Monats. für Geb. u. Gyn.*, Bd. XVII, H. 1 and 2) concludes that during the course of acute infectious diseases there is often an acute inflammation of the endometrium frequently with hemorrhages of varying severity. This inflammation is caused by specific bacteria corresponding to the active agent of the primary infectious disease. In cases, however, in which some complication occurs during the course of the infectious disease the endometritis may be caused by the same germ as the complication. The infectious agent causing the uterine inflammation is carried to that organ by the circulatory route and there finds, during pregnancy or the puerperium, especially favorable circumstances for its increase. An abortion or miscarriage during an acute infectious disease is often the result of such an endometritis of hematogenous origin.

Dysmenorrhea Treated by Permanganate of Potassium.—Wm. Stephenson (*Scot. Med. and Surg. Jour.*, Jan. and Feb.) advises the use of permanganate of potassium in all cases of menstrual suffering due to disturbance of the vascular system. Such changes are indicated by flushed and swollen face, hands of

a deep red or bluish color, feet cold and swollen, and engorgment of the veins. He gives the permanganate of potassium in two-grain doses three times a day for several months. The treatment must be kept up for some months to obtain any permanent results.

The Treatment of Cholelithiasis.—Stewart (*Am. Jour. Med. Sci.*, May), in an article on this subject, says: There is no solvent for gall-stones in the gall-bladder or in the bile passages. The employment of sodium cholate, of sodium succinate, and sodium oleate; of the more rational sodium salts presumed to have some cholagogue effect, such as the phosphate and sulphate; of the old French mixture of ether and turpentine, and of chloroform, is no longer favored by the intelligent physician with the expectation of dissolving calculi in gall-bladder or bile ducts. Treatment of active cholelithiasis is now justly very largely abandoned to the surgeon. There is no medical treatment for persisting dropsy of the gall-bladder, or for obstruction of the cystic duct; for seropurulent or purulent inflammation of the gall-bladder, or for stone long lodged in the common bile duct. But it is unnecessary, and the surgeon is usually unwilling to accept that we shift to him the cases of simple calculous cholecystitis, presumably without obstruction, until after a fair effort to dissipate the ailment without the knife. Medical treatment, however, is not to be instituted with the view to the solution or extrusion of calculi, but with the object of both controlling the inflammatory catarrhal process in the gall-bladder and of preventing its recurrence, trusting with its abatement that the calculi present will no longer create trouble. It seems probable, as before remarked, that gall-stones do not mechanically develop cholecystitis, whereby their presence is manifest. Our present knowledge of the pathology of that affection is against this old notion. It is also likely that only very rarely does attempted expulsion of a stone from the gall-bladder occur without a coincident cholecystitis. Cholecystitis is a very frequent condition, and is far more frequently latent than active, for with presumably almost 10 per cent of adults carrying these concretions, but possibly somewhat more than 5 per cent of this very large number have recognizable indications of their presence.

Should there be an old history of recurring pains, and the attack for which one is consulted suggests cholecystitis, the case is surgical, for in such a one further recurrences are probable, and the likelihood of pericyclic adhesions is strong. Stone in the common duct should be operated on no later than a month after a jaundice has developed; since with prolonged obstruction, and with so few if any adequate means at hand to promote passage of the stone, and with danger of complication so vital, it is unscientific to delay. No amount of treatment is likely to be efficient. Although jaundice may be temporarily diminished, the stay of the stone will be uninfluenced, while, in consequence of the persistent back-pressure, pathological alterations in the liver structure are soon in progress.

Other and not remote dangers of prolonged obstruction of the duct to be mentioned are perforation of the duct and pancreatic disease—pancreatic fat necrosis, and acute or chronic pancreatitis. Pancreatitis may follow very shortly after the lodgment of a stone in a situation to obstruct the duct of Wirsung. Cases are reported in which decided pancreatic lesions have followed forty-eight hours after the onset of symptoms of impaction of the calculus, a period too short even for the production of marked jaundice. Although such cases are unusual, the later occurrence of pancreatitis in consequence of obstruction is less so, and is, with other risks, one which physicians must consider, not too long delaying surgical co-operation.

The one object in the treatment of simple cholecystitis is to endeavor to render quiescent the inflammatory process in the gall-bladder and prevent, rather than favor, the passage of a calculus from that viscus. During and following the acute seizure active purgation must be avoided, as must the use of all measures which are presumed to have cholagogue effect. Under no circumstances, even in the quiescent period, must massage of the gall-bladder or of the gall-bladder region be attempted with the idea of diminishing the size of this organ or of assisting to expel its contents. Should a gall-bladder be palpable after an attack, its duct is in all probability obstructed, and the only treatment is surgical. The risk of rupture of an inflamed gall-bladder through massage is not slight. Morphine must be employed with caution in acute cholecystitis because of the danger of masking the local inflammatory condition, and because of the effect the drug may have upon the stomach, acting, as it so frequently does, to later enhance the already existing gastric irritability. Nausea and vomiting and pain, save when a stone is presumably already in passage, should be controlled by other means. *Persistent* nausea and vomiting in simple acute cholecystitis probably indicate that the calculus has already entered the cystic or common bile duct, and even if such is not the case, vomiting reflexly favors the engagement of a calculus.

In the treatment of a case of cholecystitis in the interval it is important to ascertain the condition of the motor and secretory gastric functions, and to appropriately treat any existing abnormality. Chronic gastritis frequently accompanies cholelithiasis, and when the former is of mycotic origin it favors the occurrence of the latter. The hygiene of the mouth should receive attention, that infection of the stomach from diseased teeth or gums be obviated. It is held that gall-stone suspects, irrespective of the condition of the motor or secretory gastric functions, should take food at short intervals, with the idea that stasis of bile in the gall-bladder and resulting colics be thus rendered less likely. Kehr, who is also an advocate of frequent feeding, urges that a meal be taken on retiring. While it is true that during fasting the gall-bladder acts as a reservoir for bile, and that frequent feeding favors its direct flow into the bowel, the risk of increase in gastric

atony, should this exist, and of aggravation of the gastro-intestinal catarrh so often present, with transmission of this catarrhal process from the duodenum to the bile duct, is sufficiently great to necessitate caution in the matter of very frequent meals. Feeding in this way is only indicated in those with well-preserved gastric motility or with hypermotility, and especially in such cases with hyperchlorhydria. The interval of meals should thus depend altogether upon the ability of the stomach to empty itself and largely upon the condition of the secretory function. In cholecystitis, as there is no interference with the passage of bile and pancreatic juice into the intestine, and as the gastric secretory power may be normal, no very special diet is essential. The food must, of course, be plain and easy of digestion; high seasoning must be avoided and rich entrées and pastry tabooed. No digestant is indicated if the gastric secretory power is normal and proper insalivation of food is enjoined. In obstruction of the common duct, in which there may be coincident obstruction of the pancreatic duct, as with the stone in the diverticulum of Vater, the diet should be largely albuminous, and food into which the composition of starch enters little if at all allowed. If substances containing starch are eaten, the starch should be either first dextrinized or diastase should be administered. Pancreatic extract can be of little real value as a digestant if the gastric secretory function is normal or heightened, as destruction of its ferments in the stomach is certain; but with subacidity or anacidity, fairly frequently present in these cases, pancreatic extract may be freely given with meals to serve the triple purpose of an albumin, starch, and fat digestant. It is then probably of more value, by virtue of its contained steapsin, than is the conjoint use of papain and diastase alone, which later are practically without action on fats.

Gastric atony accompanying cholelithiasis is best treated by daily morning stomach douching with alternate hot and cold water; weak sodium bicarbonate or Carlsbad salt solution in the hot water and sodium chloride in the cold—the last is preferably a weak quassia or calumba infusion. In all cases there is prescribed sodium sulphate either alone or in one of the Carlsbad combinations, such as the Carlsbad salt in powder or in crystal form, or Carlsbad water, or a combination of sodium sulphate and phosphate or of sodium sulphate, phosphate, and bicarbonate. The salt is administered in rather hot solution on rising, subsequent to the lavage if this is practised; a small quantity of bitter infusion, such as quassia or calumba or of the tincture of nuxvomica, taken coincidentally, renders the saline draught better borne by the stomach and stimulates its passage into the bowel. Movement and breathing exercises should be taken after its ingestion, and no food is permitted for upward of an hour afterward. The solution should be drunk slowly and either in sips or in small draughts, at a few moments' interval, as its passage from the stomach is thus more rapid than if it has been hastily gulped.

Abundant out-of-door exercise, tennis, horseback-riding, and

the like, except in case of very recent active symptoms, is insisted upon. Too energetic exercise is not permitted when there is persistent sensitiveness in the gall-bladder region or when there is a history of frequent recent attacks of colic. Energetic breathing exercises, general light massage, walking, hill-climbing, are all of utility in latent cases in stimulating the hepatic function and in obviating bile stasis.

Where there has been chronic obstruction of the common duct, calcium chloride should be administered for a few days prior to operation, with a view to heightening the coagulating property of the blood, and if necessary, during or immediately subsequent to operation, parenchymatous injections of gelatin. The sterile solution of gelatin should always be at hand for immediate use.

It is highly important that, following operation for chronic obstruction of the common bile duct, treatment be instituted to obviate, as far as possible, the ill effects of the long-standing bile stasis. The imminence of hepatic cirrhosis in these cases must be borne in mind. Apart from this grave condition there usually exists thickening of bile ducts and often a chronic gastroduodenitis. In the liver structural changes have likely occurred, due to the long-existing back-pressure of bile and, often, to coincident infection. Even if not structurally damaged, liver cells long accustomed to the passage of bile into the lymphatics do not readily assume normal function, and despite the removal of obstruction and free passage made for the bile, bile still, for a more or less lengthy period, finds its way into the circulation. A continued observation of these cases is, therefore, of prime importance, in order to correct the gastric and bile-duct catarrh, to obviate further bile stasis, and thus to restore the liver, as far as possible, to normal function. The state of the kidneys must also be carefully looked to.

The after-treatment should be largely on the lines already laid down for the management of chronic cholecystitis. In addition, mention must be made of the utility of certain other remedies in cases in which the jaundiced hue of skin persists. Here, apart from the measures cited for the treatment of the catarrhal condition, and in addition to attention to general hygiene, exercises, baths, and local applications, the persistent use of ammonium chloride and taraxacum is of great service. The best method of administering these remedies is to employ a morning laxative of sodium sulphate or phosphate and to give diluted nitromuriatic acid (10 to 15 minims in taraxacum, fluid extract of taraxacum juice, 1 to 2 drachms) before the midday and evening meal and at bedtime. A course of ammonium chloride (grs. xv-xx, three times daily) is alternated with the acid, and this salt is similarly exhibited in taraxacum, but is administered from one to three hours after meals.

Tuberculous Peritonitis.—Veit (*Gaz. de Gyn.*, T. XVIII. No. 397) says that tuberculous peritonitis is always secondary,

and is either ascetic or adhesive in type. The affection of the genital organs may be primary, and may consist in tuberculosis of the peritoneal covering of the genital organs only. Peritonitis with large masses not attributable to ovarian tumors or carcinoma are usually tuberculous. Spontaneous recovery of tuberculous peritonitis occasionally but rarely occurs. It is cured generally by laparotomy. Failure is usually due to advanced lesions of other organs. The reason for recovery after laparotomy is not known. The influence of normal serum or one which has become antitoxic is very probable. In recent cases operation is indicated if the peritonitis causes discomfort. If this is done too early repetition of the operation may be required. Chronic cases may be watched; if recovery does not take place they should be operated upon. The method is simple median laparotomy, complete evacuation of liquids, and suture of the wound. Isolated genital tuberculosis is the only reason for performing a radical operation.

Fibromata of the Broad Ligament.—Henri Strohëker (*Am. de Gyn. et d'Obst.*, Jan.), says that the evolution of these tumors may be abdominal, abdomino-pelvic, or pelvic. They may be interstitial fibromata of the broad ligament without uterine connection; pedunculated fibromata on the broad ligament or polypi of the ligament; sessile uterine fibromata arising from the side of the organ and penetrating the ligament; pedunculated uterine fibroids, or fibromata springing from the appendages or round ligament and developing within the broad ligament. Every intraligamentous fibroid, abdominal or pelvic, which tends to cause serious symptoms should be operated upon, except in cases of great age, severe diabetes, albuminuria depending upon a serious lesion of the renal parenchyma, or serious operative difficulties threatening the life of the patient. The abdominal route is preferable. During pregnancy operation should be postponed, and during labor as long as possible.

Ureteral Calculus.—C. Jacobs (*Ann. de Gyn. et d'Obst.*, Feb.) reports the removal of an enormous calculus of the ureter situated at about the level of the uterine appendages. Its weight was forty-four grams. The history indicated its presence in the ureter for thirty years, the woman being forty-four years of age at the time of the operation. The symptoms had been crises of localized pain, followed by passage of purulent urine for three or four months.

Perforation of the Uterus.—In the discussion of three serious cases of instrumental perforation of the uterus which he reports, Mauchlaire (*Ann. de Gyn. et d'Obst.*, Feb.) calls attention to the fact that though sometimes causing no unfavorable results, perforation of the uterus by the curette, sound, mechanical dilator, etc., may be a grave accident. As the severity of the results cannot be known in advance, he believes that exploratory laparotomy

stant in character to be a serviceable aid in diagnosis. In the large majority the symptoms began quite abruptly with severe headache, pain and stiffness in the back of the neck, vomiting, shivering, convulsions in children, varying degrees of prostration, and elevation of temperature. To this list may be added vertigo, which in a few instances was very marked at the onset. Such was the case of a boy, aged 9, who, on his way home from school one day, was seized with "giddiness," so that he fell to the ground. On regaining his feet he again fell and had to be carried home, where, shortly after his arrival, he vomited and complained of violent headache. On the fifth day of his illness he was brought to hospital in a state of profound coma, and died soon afterwards. An autopsy confirmed the diagnosis. Early vertigo was interesting in the light of post-mortem evidence, which showed that the cerebellar meninges were usually the seat of more intense inflammation than those elsewhere. Sore throat, though not constant, was complained of at the onset with noteworthy frequency. Some patients at the time they came under observation still had catarrhal inflammation of the mucous membrane of the tonsils and fauces; in one of them enlarged and tender cervical lymph-nodes were present. It may be remarked here that the possibility of the throat affording the portal of entrance of the specific micro-organism suggested itself. Only rarely did prodromal symptoms precede the onset. Several patients, however, appeared to have had a preliminary abortive onset, which passed away soon, to reappear with greater severity in one or two days. *Pyrexia.*—The course of temperature was characterized mainly by its irregularity and its varying duration. Sometimes the pyrexia appeared to be constant at the onset, the thermometer registering from 100° to 103° F. In mild cases it persisted for a few days only, in severe attacks, if not terminating fatally, very much longer. "Inverse pyrexia," i.e., greater elevation in the morning than the evening was the most striking feature of some of the charts. *Sensory Nervous Symptoms.*—In no case was headache absent; in the majority it was intense, constituting the most prominent complaint. The pain was as frequently frontal as occipital. It was not limited to the head and neck, but tended to invade the spine and to radiate generally. Pain, hyperesthesia or anesthesia, commencing in the skin over the spine, and radiating from that point is a help in distinguishing the objective sensory signs of spinal meningitis from that of peripheral neuritis. In the latter the same phenomena appear first peripherally. *Motor Symptoms.*—Tonic spasm of muscles was present to some extent in all cases, and affected the muscles of the neck, or of the spine. Orthotonos was produced, but not opisthotonus. Kernig's sign was present without exception. *Reflexes.*—The tendon reflexes, as estimated chiefly by the knee jerks, almost invariably disappeared sooner or later in the course of the disease. Babinski's toe-extension phenomenon was present in two patients, aged 7 and 17. *Delirium and Coma.* Delirium occurred in all but the very mild cases, and

gradually merged into coma, either that indicative of cerebral compression or coma resembling the so-called "typhoid state." *The Eyes* were for the most part normal. Marked optic neuritis was never detected. *The Ears*.—Deafness other than that accompanying coma, did not appear as commonly as the records of other epidemics imply. *Cutaneous Eruptions*.—Herpes or erythema were common early in the disease. Only twice were purpuric spots observed. *The Pulse* showed no constant characteristics. In the majority of cases it was abnormally slow at some stage of the disease, in the minority rapid throughout. Among more miscellaneous clinical observations made during the epidemic were the following: an extraordinary degree of emaciation in many patients despite generous diet; enteric-like stools in two; palpable enlargement of the spleen in one. Occasional vomiting of cerebral character occurred in many cases throughout the whole course of the fever. *Treatment* was mainly directed to the alleviation of headache; the only sedative which produced decided results was morphia given hypodermically. It was well borne, even in repeated doses. When distinct evidence of cerebral compression was present, the withdrawal of 8 or 10 c.c. of cerebro-spinal fluid by lumbar puncture was performed. The result was, in a few cases, strikingly good if transient. *Mortality*.—Of the 36 cases 14 died. *Morbid Anatomy*.—Thirteen autopsies were performed, and showed that the extent of the macroscopic post-mortem changes varied greatly and were sometimes apparently disproportional to the length and severity of the fatal attack. Regarding the brain, the inflammation of the pia-arachnoid was usually best marked at the base, tending to spread over the cortex. The situation where the severest inflammation was most frequently found was the superior surface of the cerebellum. The lateral ventricles were usually found distended to some degree with clear or slightly turbid fluid. *Bacteriology*.—In the inflammatory exudations and in the fluid taken clinically by lumbar puncture, the diplococcus intracellularis meningitidis was invariably present except in one case, which was proved to be a tuberculous meningitis.

The Functional Powers of the Liver in Children, Demonstrated by Levulose.—Dominico Crisafi (*Riv. di Clinica Pediatrica*, Feb., 1903) experimented with levulose on healthy and on sick children. No relation was found to exist between the amount of levulose utilized and the body weight. From the observations on children suffering from diphtheria, measles, or a combination of the two, broncho-pneumonia, cardiopathies, chorea, endocranial tumors, nephritis, pericarditis, and pulmonary tuberculosis, it was found, (1) That the dose should be from 24-40 grammes in children under five years, and from 40-60 up to twelve years. (2) In acute infectious diseases the functions of the liver are usually unimpaired. (3) Nephritis and slow tuberculous processes appear to cause the most disturbance to the hepatic function.

(4) The phenylhydrazin test is the most delicate of all in the search for traces of levulose in the urine. (5) Levulose is the best substance to use in testing the functional powers of the liver.

Lorenz's Method of Treating Congenital Dislocation of the Hip.—J. Jackson Clarke (*The Practitioner*, March, 1903) describes the operation in full, and reports a number of cases. He fully endorses the method and takes up the question of the proper attitude of the medical profession with regard to children afflicted with this congenital dislocation. One of the English medical journals has recently published remarks which include the following: "It is true that the risks of sepsis and hemorrhage are removed by this operation; but the tissues around the joint are violently lacerated. . . . A judicious hesitancy should characterize the surgical mind until we have more certain data on which to found an opinion." The author says that with regard to the first part of this judgment it must be observed that the mention of the parts "around the joint" as being lacerated shows that the writer himself was unfamiliar with the operation. It is only some of the adductors, which are on the minor aspect of the limb and not around the joint, that are "lacerated" and that not "violently." The successive hackings with the hand on the tense adductors, gradually produce a real separation of the fibers of the adductor longus, and in some cases of the adjoining fibers of other muscles of the adductor group. The term "violent laceration" is, however, not appropriate, and in patients who are subjected to treatment at the most suitable age—that is, up to five or six years—it is altogether misleading. There is, with regard to these cases, certainly no urgency such as exists in many surgical conditions, but it is hard to see what more "certain data" can ever be forthcoming than are already to hand for those who choose to seek. Many completely successful results, verified by skiagrams and the evidence of unimpeachable witnesses, have been published and shown at professional gatherings in Europe and America. It is most important that the patients now being operated on in England, with the benefit of the improved methods which Lorenz has patiently taught us, should be kept carefully in view, and that the results should be published and, where possible, demonstrated in about two years' time, because ocular demonstration is more convincing than records. But how many are the patients who, if kept waiting for two years with a "judicious hesitancy," will have attained or passed the average age-limit for the success of the treatment—it is more than an operation—or will have passed the time when the operative part of the process can be performed with ease and safety and will thus be subjected to wholly unnecessary risks? The opinion of Hoffa whose treatment of congenital hip-dislocation has been largely superseded by that of Lorenz, and who is unlikely to be biased in favor of the latter's method, is as follows: "In any case, Lorenz's method is a great advance, for the chief

thing is that the functional result of the method is for the most part highly satisfactory. The children with unilateral dislocation often walk so well that one can scarcely detect a trace of their former defect, and those with double dislocation lose their lordosis and walk at the most with a trifling swaying of the trunk." The author thus sums up: Lorenz's method of treating congenital dislocation of the hip is based on correct anatomical and physiological grounds; it is the outcome of an exceptional experience both of open and subcutaneous operating; in a considerable proportion of cases it gives a perfect anatomical and physiological result (*i.e.*, it cures a condition hitherto deemed incurable); in a still greater number of cases it affords a permanent functional improvement that relieves the patient of the grievous disabilities which the deformity usually entails if left untreated. In the remaining cases in which the method fails to give a firm articulation placed anteriorly, the manipulative operation of Lorenz is a necessary preliminary to any subsequent treatment by open operation that may be undertaken. The manipulative operation is free from danger save when treatment has been too long delayed.

Phosphorus in Rachitis.—Luigi Concetti (*Riv. di Clinica Pediatrica*, Jan., 1903) reports a number of cases which he divides into two groups. In the first the symptoms were those belonging to rachitis as usually seen, in the second the symptoms were referable to the nervous system—laryngeal and respiratory spasm, hyperesthesia, irritability, pavor nocturnus and tetany. Those of the first group were beneficially influenced by phosphorus and with relative rapidity—say from one to two months. No other known treatment acts so quickly. In the acute stage, especially, the effects are seen at once upon pain and upon the power of raising the body and walking a few steps. Naturally enough, hardening of the bones, the eruption of teeth, and locomotion require a longer time for the repair of the affected tissues, etc. In the second group of cases, the rapid action of the remedy is even more evident, the spasms subsiding in two or three days. The author does not hold that this improvement is due to direct action on the rachitis, but to action on the toxins produced by rachitis, which attack both the bony and nervous systems. These toxins arise chiefly in the gastro-intestinal tract, but they may follow acute infectious diseases. The author adopts the method of Kas-sowitz in the administration of the remedy. One centigram of phosphorus is dissolved in 100 c.g. of the excipient, which should preferably be cod-liver oil, but may be almond or olive oil. The dose consists of a teaspoonful of this solution morning and evening before meals.

The Prevention of Measles.—George Newman (*The Practitioner*, March, 1903) thus summarizes the available means for the prevention of measles in London.

(1) Compulsory notification [*a*] for all cases; [*b*] for first cases

in a house only. (2) Voluntary notification by medical men, clergy, district visitors, school teachers, etc. (3) [a] Closing of day and Sunday schools; [b] exclusion of members of affected households from schools. (4) Prevention of persons attending work where infection is likely to be spread, as by hawkers, milk-sellers, teachers, tailors. (5) Better isolation at home. (6) Provision of hospital accommodation. (7) Disinfection of invaded households. (8) Preventing the issue of books from public libraries to infected houses. (9) Instruction of the public by leaflets and other means.

Nos. 1, 2 and 6 are practically out of the question in most districts. No. 3 is in vogue everywhere, although often exercised too late to be of much preventive value. The remainder come in a general way within the rights and duties of local authorities. In all probability it is to general conditions that we must look for the successful prevention of measles, and chiefly to three—namely, education, school closure and disinfection. The prevention of complications, especially broncho-pneumonia, is the most important point, clinically, in the treatment of the disease. Cleanliness and ventilation, the seriousness of the disease, and its marked infectivity are the main topics upon which the public require education. Simple and, it must be added, short statements printed in leaflet form and widely distributed have doubtless done good. Health visitors have probably, in the long run, done better. Both may be combined; and measles and whooping-cough are unquestionably two diseases in which this somewhat exceptional method of prevention is justifiable. The placing of measles among “dangerous infectious diseases,” with the consequent warnings that would be made during times of epidemic, will lead the public to look more seriously upon the disease and to take steps to avoid the fatal complications which ensue from improper exposure and want of care. They will learn that in the mortality returns it is generally the complications following measles that really cause the death of the patient. In the second place there is unanimity of opinion that school notification and school closure are powerful preventive methods if rightly applied. We require an extension to all denominational and private schools, as far as possible, of the plan already in vogue by which board school teachers inform the medical officer of health of any cases of measles occurring among the children in their schools. There can be no doubt that measles is spread directly through the agency of schools. From these data we should know the time when it would be wise or necessary to exclude certain children from school, to visit absentees suffering from measles, to deal with infected houses, or to close schools, especially infants’ departments. This method has been put into practice, with considerable success, by a large number of sanitary authorities. The idea is prevalent in some quarters that the closure of schools is of little avail in the prevention of epidemics, because if children are not in schools they are playing about together in the courtyards and streets. But there is very consider-

able difference between children crowded together in a school-room, in confined air space, and children playing about in the open air. In particular, school closure must apply to infants' departments, and it must be applied as soon as the incidence of the disease has reached, say, 10 per cent of the average attendance, although no hard-and-fast rule can be laid down. To close schools much earlier than this is to run the risk of the disease breaking out again when the school reopens. To close them much later is useless as a preventive measure. After all, the question of school closure involves the assumption that infection is due to infectious school rooms or infectious schoolmates, and both must be borne in mind in deciding whether to isolate infected cases only or close the school. During 1901 between 50 and 60 schools or classes were closed in London in pursuance of this principle.

Lastly, there is disinfection. If properly and effectually carried out this will operate in a directly beneficial manner. This was especially noticed in infant departments of several large elementary schools in Newcastle. In one such school yielding 44 cases in the three weeks immediately preceding the disinfection of the school, after the first fortnight the number fell to a total of 3 in thirteen weeks. In another parallel case the number fell from 56 in six weeks, before disinfection, to 4 in the twelve weeks after. In a third, the decrease was from 12 to an average of 2 per week. Similar evidence of the efficacy of thorough disinfection after measles in schools is obtainable in many quarters. The prevention and control of measles is like that of whooping-cough or phthisis, largely in the hands of the public themselves; and yet the enormous annual death roll of such diseases calls for every effort on behalf of the sanitary authority, which is at all likely to prove practicable and efficacious.

Scarlatiniform Erythema.—Olimpio Cozzolino (*Riv. di Clinica Pediatrica*, Feb., 1903) reports two cases of an eruption from which he draws the following conclusions: (1) That there is a form of desquamating, relapsing scarlatiniform erythema independent of infective disease or of intoxication by drugs or serum therapy, which in nowise differs from scarlatina except possibly in the manner of its distribution on the face, the long duration of the eruption and the early appearance and amount of desquamation, so that a first attack may puzzle the most experienced practitioner. (2) A second and third attack exclude all possibility of doubt. (3) The disease should be considered a general toxic infection, a toxi-derma due to toxidermic agents circulating in the blood which may be chemical or bacterial. (4) The disease may recur from probable autointoxication of gastro-intestinal origin. (5) The prognosis is usually favorable unless there should arise grave complications such as pericarditis. (6) The majority of cases reported as relapses of scarlatina should be considered as scarlatiniform erythema.

Scarlet Fever Treated by a Scarlet Fever-Streptococcus Serum.—P. Moser (*Jahrb. f. Kinderhk.*, Vol. 57, Nos. 1 and 2) obtained a serum from horses by injecting them with cultures of streptococci isolated from the blood of children sick with scarlet fever. Since November, 1900, eighty-one patients have been treated with the serum. The injections were made as early as possible in the disease; but, for the most part, only the severe cases were so treated. Nevertheless, the death rate from scarlatina in the St. Ann's Children's Hospital, in Vienna, was reduced to 8.99 per cent in 1901, against 12.45 per cent in 1900 and 20.12 per cent in 1895. The serum caused very rapid amelioration of the general condition, the prostration disappearing. The exanthem did not fully develop, or else it went away more rapidly. The nervous symptoms disappeared, the temperature fell, the pulse rate was lowered, the throat symptoms were less severe, and glandular swellings and suffocation less common. The duration of the disease was shortened. Large doses must be used.

In thirty-nine cases the serum was used as a preventive measure, and of these but four developed scarlet fever, all in a mild form. The bad effects of the remedy are an occasional serum exanthem, mild glandular swelling, or joint affections. Although only 11.59 per cent of all the scarlet fever cases occurring in the hospital were treated with the serum injections, the conclusion is inevitable that the remedy has a specific curative effect upon scarlet fever, especially upon severe cases.

Sterilization of Milk, the Influence of, Upon Infant Metabolism, Especially Bone Formation.—Cronheim and Müller (*Jahrb. f. Kinderhk.*, Vol. 57, No. 1) experimented with two healthy infants quite free from rachitis, and came to the conclusion that the sterilization of milk, at least for a prolonged period, should, if possible, be avoided in the feeding of babies. Less lime is absorbed from sterilized than from raw milk. It is not impossible that the enzymes and other specific substances present in milk and which are destroyed by sterilization, have a value which it is, as yet, impossible to estimate properly.

Symptoms Simulating Appendicitis Caused by an Intra-Abdominal Band.—James A. Keown (*Boston Med. and Surg. Jour.*, March 5, 1903) reports a case in order to show that other conditions besides appendicitis may cause pain and tenderness in the right side of the abdomen with a rise of temperature, as well as the need of more careful examination of the abdomen when a normal or nearly normal appendix is found at operation.

A. W., a boy of eight, has for two years had more or less distress in the abdomen in the vicinity of the umbilicus. At times, the pain for a few days would be quite severe. At these times tenderness would be quite marked at McBurney's point, also extending up to the umbilicus. The temperature would also be ele-

vated during these attacks, and in the final one rose to 102.5° F. In two of the attacks vomiting was present, but not to a marked extent. In September, 1902, the patient after a long period of freedom from pain was seized with vomiting, pain in the abdomen and marked tenderness at the umbilicus and over McBurney's point, with rigidity. The temperature rose to 102° F. on the second day, and slowly subsided during the next week. At the end of two weeks there remained some tenderness on deep pressure at McBurney's point, with some rigidity.

During these attacks the patient was seen by another physician who diagnosed the case, appendicitis. As the mother was alarmed, and as the existence of appendicitis could not be ruled out, the patient was operated upon. On September 30, 1902, under aseptic precautions, an incision was made over the appendix, and the usual McBurney's operation done. The appendix, except for being excessively long (six inches), was normal. On more careful examination for the source of the pain a band was found running from a loop of small intestine upwards to the umbilicus. This was ligated and removed; the stumps were turned inward covered by peritoneum. This on examination was found to leave an opening part way on the bowel side. At about the end in connection with the bowel, the peritoneum was granular and red. The abdomen was closed, and the patient made an uneventful recovery.

Syphilis as a Cause of Chorea.—L. Harrison Mettler (*Chicago Med. Recorder*, March 15, 1903), as the result of a careful study of the question from all sides formulates his conclusions about as follows: (1) Syphilis, in rare instances, is a cause of chorea and it should always be thought of as a possibility during the examination of every case. (2) Chorea may be the result of acquired or hereditary syphilis. (3) Most of the cases of syphilitic chorea are unilateral, though they may be bilateral and generalized; belong to the pre or post hemiplegic type of the disease; may or may not be associated with other signs of an irritative lesion; may not unfrequently be developed in hereditary syphilitics; and are to be attributed in all probability to a functional disturbance of an irritative sort in the cortical and ganglionic motor cells. (4) The existence and recognition of the two forms of syphilitic chorea, namely, the focal and the diffuse, support the inference that all forms of chorea are but the expression of one or more of the multiplicity of possible factors which may disturb the functional activity of the upper motor neurones, these factors being all the way from a gross lesion down to a molecular or chemical change not demonstrable with our present means of investigation. This conclusion leads to the further conclusion that chorea is not a disease but a mere symptom. (5) Syphilis having finally been settled upon as the cause of any particular case of chorea, that case should be regarded and promptly treated as a case of syphilis and not as a case of chorea.

A System for the Surgical Treatment of Hare-Lip and Cleft Palate.—George V. L. Brown (*Chicago Med. Recorder*, March 15, 1903) says that by a systematic application of orthopedic principles all forms and conditions of these deformities are brought to a nearly common plane through the readjustment and correction of unfavorable conditions with due recognition of those differences which distinguish simple from difficult or impossible cases. In favor of operation in early infancy there is something to be said; the objections are first, the high rate of mortality among infants under surgical operations of any kind; second, in such cases the added danger of meningitis from infection or pressure or both must be considered; third, loss of vitality from hemorrhage and other direct effects or operative procedures in spite of the admitted fact that shock in the common acceptance of the term may not be so serious a factor in infancy as in later life; fourth, disturbance of the digestive tract and consequent loss of nourishment due to mouth bacteria and difficulty in taking food incident to the sutures and plates with which the parts are secured, must be considered with reasonable gravity; fifth, it is the belief of the writer based upon observation and experience, that the characteristic appearance of the face, nose and lips resulting from arrest of development following radical operation in early infancy is not so good, nor is the soft palate usually obtained in the haste that with the newly born is imperative likely to be so perfect or afterward so useful as one treated under conditions where more deliberate methods are possible. To maintain the advantages and avoid, at the same time, the disadvantageous conditions of early operations, should then be the purpose of any line of procedure in these cases. In order that increase of deformity by neglect may not occur, it must be remembered that at birth the lower jaw has undergone ossification much in advance of the condition of the superior maxillæ and bones of the nose and face. Therefore, the crowding of the wedge-shaped harder body between the soft-yielding and ununited lateral portions of the palate by the muscles of mastication exerted in efforts to suck and in taking food must force them farther apart. In crying and laughing also, the muscles of the mouth and cheeks pull apart and influence in a marked degree, widening of the intervening space. Therefore, if early operation be considered an unnecessary danger, the first necessary step must be to protect the child from greater distortion, and if possible, to reduce the deformity. Unequal development almost invariably is noticeable in these cases. The author has a method of wiring to correct this feature and to simplify the lip operation by reducing the width of the lip and palate fissures, and in addition secure a straight nose for the individual. With strips and bandages properly applied the lip may be bound with the sides of the fissure in contact. This gives little or no inconvenience to the child, enables it to take nourishment by sucking naturally, thus aiding its development and preparing for the success of a future

operation. The action of the lower jaw cannot, under these conditions, crowd the parts and increase the palate deformity, while laughing or crying exerts muscular power to reduce the separation instead of widening it, and stretches the lip so that usually there is an abundance of tissue where otherwise it might often be so scant as to make artistic results doubtful. The story of orthopedic surgery is a simple one; mechanical correction in the form and character of osseous structures and revision of maladjusted ligamentous and muscular attachments of articulating bones until by ingenious application of the one all-important principle that bodily tissues under all circumstances yield to steadily exerted pressure, many of the more radical surgical procedures in the treatment of these cases have been done away with. Obviously, then, if the palatal fissure be too wide and the lateral surfaces of the palate too flat, to admit of a successful surgical operation for immediate closure, the space to be bridged across the fissure must be made narrower, and the angles of the sides more accentuated in their slope in order that when stripped away from the borders of each side the periosteum and other tissues when brought down in the centre may meet without tension by simply making the arch of the palate flatter. If the patient be in early infancy simple harnessing of natural muscles is sufficient. At one year old, or a little later, appliances attached to deciduous teeth, admitting of gradual pressure being exerted by nut and screw thread, will without serious disturbance, overcome the natural difficulties almost entirely. Operation is then not only easier but safer, and yet speech defects have not had time to become established habits. In later life, either by fracture and immediate moulding of the parts with splint to hold in the desired form or weakening of resistance by cutting the external walls of the superior maxillary bones partly through, especially at the molar process and in the region of the tuberosity, an appliance similar to the one used for younger patients may then be used to accomplish the purpose of reducing to ideal form very nicely. The author holds that there can be no case of cleft palate that may not be closed by operation and treatment, if persistently and systematically pursued.

Tetanus Successfully Treated With Veratrum Viride.—H. B. Sweetser (*Northwestern Lancet*, Dec. 1, 1902) reports a case in a girl of 14 years, subsequent to operation. The disease was of a grave type and rapid in progress. Other drugs having failed to give relief the author administered veratrum viride and gelsemium in combination, with the best results. Veratrum viride is a direct depressant of the spinal motor centers alone. It depresses the heart's action and slows it to a marked degree, yet because of the free vomiting, dangerous symptoms scarcely ever occur. Gelsemium has a direct depressant effect on both the motor and sensory areas of the spinal cord, causing profound muscular relaxation and diminished reflex irritability. The author calls attention to the fact that chloral is a dangerous drug, which is even

more liable to exert its poisonous effects when given during the course of so fatal a disease as tetanus than when given in health, and protests against its reckless and continuous use, in cases of tetanus, even after it is plainly evident that it is doing no good. He holds that some of the deaths ascribed to the tetanus poison have really been due to the effects of the remedies used.

Temperature of 110 Degrees in an Infant Ten Days Old.—C. W. Kahl (*Pacific Med. Jour.*, Dec., 1902) was called to see a child the eleventh day after birth. At 5:30 P.M. the temperature per rectum was $110^{\circ}+$, or equal to 112 had the graduation extended as the mercury raised. It would be difficult to say just how far the mercury would have risen had the author had a longer thermometer. There had been no action of the bowels in 24 hours. The babe refused to nurse. Its head rolled from side to side, eyes partly open, lips parched and everted. There was tympanites, and a slight superficial inflammation of umbilicus. The breathing short and shallow; general appearance of child, great pain. He at once ordered cold baths every two hours, antiseptic wash for umbilicus, and applied anti-phlogistine; also rubbed the abdomen with sweet oil and turpentine, castor oil oz. j doses every four hours. Strychnia sulph. gr. $\frac{1}{8}$, quinine sulph. gr. v, syr. simplex oz. iij; oz. j every two hours. At 8 A.M., twelfth day, child rested better, nursed some, general inflammation of umbilicus subsided; appearance much improved; temperature $101\frac{1}{2}^{\circ}$ F.; there was no action from bowels, though several doses of oil had been administered; so to continue the laxative medicine he gave it magnesium sulph. oz. ss, aquae 3oz. j, of this oz. ss doses every half hour till free action from bowels; the strychn. and quinine continued. At 6 P.M. temperature $99\frac{1}{2}^{\circ}$, free action from bowels, first hard and curdled, followed by green and slimy stools, this condition lasted for two days. At 6 P.M. next day, temperature 99° , child nursed, slept well, tympanites disappeared; umbilicus healed perfectly. There was complete recovery.

The Thyroid, Tuberculosis of (Struma Tuberculosa).—Clairmont (*Wien. klin. Wochens.*, Vol. XV., No. 48) reports a case in a child two years old, of good family history, who had always been well until a swelling appeared on the neck and began to grow rapidly, causing some dyspnea. The growth was firm; fluctuation could not be made out; there were no symptoms of Basedow's disease. The growth was excised and its contents found to be cheesy. The dyspnea improved and the wound granulated well, but a fistula remained. Five months later another swelling appeared in the same region. It was as large as an apple and was also removed by operation. Recovery was complete. Microscopical examination showed tuberculosis of the thyroid gland. Eleven months later the child was apparently well and had no enlarged lymph nodes, but pallor and apathy were marked and

the patient seemed more stupid and unresponsive than before the operations. Four other cases have been reported in which the thyroid tuberculosis was the only one giving clinical symptoms, but these by no means prove that the thyroid gland was the seat of a primary tuberculous lesion.

The Treatment of Spina Bifida.—William V. Laws (*Penn. Med. Jour.*, Feb., 1903) says that spina bifida may be likened to a congenital hernia through the abdominal wall. When the hernial sac, consisting of the membranes of the spinal cord, simply contains cerebro-spinal fluid, it is called a meningocele. On the other hand, if it contains the cord itself, or the termination of the cord, or nerves given off from the cord, it is called a meningo-myelocele. Spina bifida occurs about once in every 1,000 births, and seems to be found most frequently in females. Without treatment, few children with spina bifida live longer than from three to six months after birth, most of them dying from convulsions, or from rupture of the sac, followed by septic infection. Heretofore the principal methods employed in the treatment of these cases have been the injection of some irritant, or open operation, with total excision of the sac and closure of the wound in the soft-tissues. If we are right in likening this pathological condition to a congenital hernia of the abdominal contents, then the same principles should be applied to its radical cure that the experience of the last ten years has proved to be the best for the cure of hernia generally. The author has discarded the injection method and has followed the operative technique as first described by Nicholl of Glasgow, which is as follows: In cases of pure meningocele the sac is simply opened, explored and cut away. Its neck is closed by ligature or suture (depending on the size of the aperture), and covered in by flaps of fascia and skin. Excision in such cases constitutes an easily accomplished radical cure. In cases where the sac contains nerves the following methods have proved useful: 1. In certain cases it is possible to dissect the nerve cords off the sac, place them in the spinal canal, suture the sac over them, closing in the spinal canal, and covering all with the fascial and the skin flaps. 2. When the nerve strands are numerous this is impossible, and the following plan has to be adopted: Raise the skin and fascial flaps as usual; open the sac and explore the interior; excise any portion free from nerve tissue, cut the remainder into ribbons by incisions made from the interior, avoiding the nerve tissue; gently but thoroughly roughen the entire interior, including the surface of the nerve bands with the point of the knife. Place the emptied and roughened or cut up sac in the patent spinal canal and cover it in with the fascial and skin flaps. The author reports two cases operated upon according to the above method.

Thirteen Cases of Edema, Apparently Epidemic in Character.—Halsey DeWolf (*Arch. of Ped.*, December, 1902) reports

these cases which occurred in the Providence Lying-In Hospital during October, 1900: Gastroenteritis had been prevalent among the thirty-five babies then in the hospital. Finally, on October 23 the first of the 13 cases of edema appeared, the others following closely during the next eleven days. The patients varied in age from six days to two years. In one case the condition of the bowels was not recorded. In all but ten of the remainder, there had existed gastroenteric trouble, of more or less severity, either immediately preceding, or at the time of the appearance of the edema. Of the 13 cases, 9 died in the hospital, the remaining 4 being discharged against advice.

The symptoms were so similar in all the cases, that they may be readily grouped. All the patients were pale and several pasty looking with a general appearance of apathy and depression. The temperatures were subnormal, the skin dry, soft, and pitting deeply on pressure. The edema in one of the cases first appeared in the feet, in 3 of them first about the face, while in the rest it began simultaneously in feet, face and hands. It increased rapidly and in a number of cases was intensely marked, the puffy face almost concealing the eyes, while the legs and arms looked as if they would spurt water if punctured. Another very noticeable feature was the rapidity with which the amount and locality of the swelling changed. One day the face would look like bursting and the legs almost natural, the condition being reversed the following day, or even a few hours later. A rapid increase in weight was either a forerunner or an accompaniment of the oncoming edema, with a corresponding loss as the edema disappeared. So far as was noted, there was at no time any marked suppression or increase of the amount of urine. The enteritis cleared up largely, as the edema disappeared. Physical examination of chest and abdomen was negative except as above noted. It seems probable that the edema was due to a common cause in all the cases, since they appeared at practically the same time, and showed almost identical symptoms. The cause was probably operative from without, rather than as an infection from child to child, as the patients were in different wards, on different floors and attended by different nurses. As to the pathologic lesion which existed, in medical literature frequent reference may be found to this condition of edema occurring in depleted and anemic infants. All writers seem to agree that it occurs most often in cases of extreme malnutrition and anemia, and that it is due to a leaking of the blood serum through diseased vessel walls. Herringham adds to this that in his opinion, there is "some original toxic poison as that of scarlatina, which produces not only the anemia but also the edema as well." In the cases under discussion, we find present distinct physical depletion with some anemia, and the possibility, at least, of some specific toxin originating in the gastrointestinal canal and, secondarily, affecting the whole organism. The author thinks the most reasonable theory to be that a period of severe bowel disturbance rendered these patients susceptible to some common in-

fection, possibly acquired from the milk; this infection spreading from the gastrointestinal tract, produced pathologic changes in the blood and blood vessel walls, besides affecting to a greater or less degree the kidneys, as a result of which changes there appeared the edema.

Tuberculous Peritonitis in Children.—G. A. Sutherland (*Med. Press and Circular*, Jan. 28, 1903), writing of the prognosis of this disease, concludes that: 1. In uncomplicated tuberculous peritonitis the prognosis is good. 2. When tuberculous pleurisy is present the prognosis is still favorable. 3. The prognosis is rendered less favorable in the case of (a) a strong family history of tuberculosis; (b) an infancy passed under bad hygienic and dietetic conditions; (c) a constitution of feeble resistant power; or (d) a history of severe infective illness in early life. 4. The prognosis is rendered less favorable in the presence of one or more of the following symptoms: continuous pyrexia, rapid wasting, persistent diarrhea, rapid pulse, and recurrent acute exacerbations. 5. The prognosis is rendered less favorable in the presence of one or more of the following local complications: (a) tuberculous ulceration of the bowel; (b) extensive caseation of the mesenteric glands or of tuberculous masses; (c) localized suppuration from infection through glands or the intestine; and (d) obstructive symptoms from bands or matting of the intestine. 6. The prognosis is bad in the case of the following complications: (a) the rupture of a suppurating gland or the perforation of an intestinal ulcer into the peritoneal cavity; (b) pulmonary tuberculosis; (c) tuberculous meningitis; and (d) general miliary tuberculosis. 7. In tuberculous peritonitis the prognosis is not appreciably affected by simple laparotomy.

Some Difficulties in the Diagnosis of Tuberculous Meningitis.—C. P. Handson (*Treatment*, Jan., 1903) discusses the value of certain signs in the diagnosis of this disease at an *early* stage. Constipation, vomiting of a cerebral type, headache, convulsions, inequality of pupils, strabismus and retraction of the head, if present together, would justify a grave prognosis, but are not in themselves characteristic, and may be entirely absent. The temperature and respiration present no special features, though there may be prolonged and sighing expiration early in the disease. The hydrocephalic cry is often absent in tuberculous meningitis and the author has met with it in a child, aged three years, with acute lobar pneumonia. Various vasomotor disturbances, such as flushing of one or both cheeks; erythema, etc., are common; but the *tache cérébrale* is seldom well marked until the later stages. Optic neuritis is usually present early. According to Dr. Gee, it is absent if the process is limited to the convexity. The most important aid to an early diagnosis is the character of the pulse. An infrequent pulse with a raised temperature is in the

author's opinion almost diagnostic of intracranial disease. *Almost*, because the same phenomenon may be met with in enteric fever. Another character of the pulse in early meningitis is irregularity—and when both infrequency and irregularity co-exist their importance in a doubtful case cannot be overestimated. This applies to the early stage, of course, for in the final or paralytic stage the pulse is almost always frequent. Tubercles in the choroid, if seen during life in a case presenting doubtful symptoms of tuberculous meningitis, would change the diagnosis. *Simple meningitis* is said to have no prodromata, and if it affects the convexity as well as the base to run a more rapid course. *Otitis media* may simulate tuberculous meningitis in at least three ways. (1) By producing thrombosis of a cerebral sinus, with or without pyemia. (2) By causing meningitis, with or without cerebral abscess. (3) The otitis may begin as a tuberculous affection of the tympanic mucous membrane, or as a tuberculous osteomyelitis of the mastoid. A cerebral tumor may simulate tuberculous meningitis. As to the diagnosis from extracranial diseases, *dyspepsia* may closely resemble tuberculous meningitis in children, and so may *enteric fever*. In the latter perhaps the most reliable distinguishing signs are the distention and tenderness of the abdomen, which are usually present in enteric fever, and the abdominal retraction without tenderness (though there may be cutaneous hyperesthesia) usually met with in meningitis. In lobar *pneumonia* vomiting and retraction of the head may sometimes be the first symptoms. In pneumonia unless actual meningitis is present, the pulse rate probably follows the temperature, and this is the exception in meningitis. *Hysteria*, *hypochondriasis* and *melancholia* have all been known to be simulated by tuberculous meningitis. Pritchard has published a case in a man which, but for the absence of delusions and the presence of phthisis, might have been diagnosed as simple melancholia.

Surgical Scarlatina after Burns.—Leiner (*Jahrb. f. Kinderhkk*, Vol. LVI., No. 6) has observed three cases of true scarlet fever in children aged fifteen months, three years and four and a half years respectively, in whom the disease developed a few days after severe burns or scalds. It would seem that there is some relation between burns and scarlatinal infection—whether it be that the burn makes a direct point of entrance for the scarlet fever poison or whether it only increases the predisposition to scarlatina.

ITEMS.

THE TWENTY-EIGHTH ANNUAL MEETING OF THE AMERICAN GYNECOLOGICAL SOCIETY WILL BE HELD AT WASHINGTON, D.C.,
ON MAY 12, 13, AND 14, 1903.

The sessions, which the profession is cordially invited to attend, will be held in Lecture Hall No. II, Medical Department, Columbia University, No. 1325 H Street.

The program of the meetings will be as follows:

1. What Shall be the Treatment in Cases of Pregnancy Complicated by Fibroid Tumor?

(a) Introduction. HENRY C. COE, New York.

(b) The Influence of Pregnancy upon the Nutrition and Growth of Uterine Myomata. E. E. MONTGOMERY, Philadelphia.

(c) Myomectomy or Hysterectomy? JOSEPH TABER JOHNSON, Washington.

(d) Pregnancy and Labor Complicated by Myomata. GEORGE TUCKER HARRISON, New York.

2. Combined Bisection of Tumors and Uterus with Enucleation of the Former in Abdominal Hysterectomy for Large Fibroid Tumors. GEORGE H. NOBLE, Atlanta, Ga.

3. Clinical Observations on the Results following the Removal of Both Ovaries, especially in Young Women. W. GILL WYLIE, New York.

4. Relation and Co-relation of Gynecological and Nervous Affections. CHAUNCEY D. PALMER, Cincinnati.

5. The Etiology, Pathology and Treatment of Puerperal Sepsis.

(a) Introduction. HIRAM N. VINEBERG, New York.

6. Discussion Continued. WILLIAM R. PRYOR, New York; WHITRIDGE WILLIAMS, Baltimore.

7. Repetition of Cesarean Section on the Same Patient: The Experience of the Boston Lying-in Hospital. CHARLES M. GREEN, Boston.

8. Renal Decapsulation for Puerperal Eclampsia. GEORGE M. EDEBOHLS, New York.

9. The PRESIDENT'S Address at 11 o'clock.

10. Carcinoma of the Cervix Uteri. THADDEUS A. REAMY, Cincinnati.

11. Primary Carcinoma of the Vulva. REUBEN PETERSON, Ann Arbor.

12. Should the Uterus Be Removed when the Ovaries and

Tubes Are Removed in Cases of Double Pyosalpinx, when Operating Either Through the Abdomen or the Vagina?

- (a) ANDREW F. CURRIER, New York.
- (b) PHILANDER A. HARRIS, Paterson.
- (c) FLORIAN KRUG, New York.
- (d) I. S. STONE, Washington, D. C.
- (e) MATTHEW D. MANN, Buffalo.
- (f) HENRY C. COE, New York.
- (g) CHARLES P. NOBLE, Philadelphia.

13. Uretero-Cystotomy. J. WESLEY BOVÉE, Washington.

14. Note on the Occurrence of Gall-stones in Insane Women. W. P. MANTON, Detroit.

15. Excision of the Proximal Ends of the Fallopian Tubes at Their Origin in the Uterus, the Operation of Choice, for the Extremely Rare Cases wherein Sterility Is Desirable. PHILANDER A. HARRIS, Paterson.

16. Appendicitis with Special Reference to the Disease in Women. ARCHIBALD MACLAREN, St. Paul.

17. Inflammation of the Right Uterine Adnexa with Appendical Complications. WM. H. WATHEN, Louisville.

18. Report of a Case of Tubercular Pyonephrosis and Cystitis with Specimen: Weight of Kidney after Removal Eighteen and One-Half Ounces. W. L. BURRAGE, Boston.

19. Report of a Case of Tuberculosis of the Cervix Uteri and Adnexa. HIRAM N. VINEBERG, New York.

20. Personal Experience in Operations upon Diabetic Patients. CHARLES P. NOBLE, Philadelphia.

RESOLUTION OF THE MEDICAL BOARD OF THE GENERAL MEMORIAL HOSPITAL ON THE DEATH OF DR. T. GAILLARD THOMAS.

Resolved, That by the death of Dr. T. Gaillard Thomas we have lost an eminent and highly esteemed member of the Consulting Staff, who had been connected with the Hospital since its foundation. He has gone to his reward, crowned with years and honors, wearing both with grace and dignity.

That a copy of this resolution be sent to the family of the late Dr. Thomas, and that it be published in the medical press.

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TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY.

Proceedings of the Twenty-eighth Annual Meeting, held at Washington, in Conjunction with the Sixth Triennial Session of the Congress of American Physicians and Surgeons, May 12, 13 and 14, 1903.

*The President, DR. JOSEPH E. JANVRIN, of New York,
in the Chair.*

An Address of Welcome was delivered by DR. I. S. STONE, of Washington, D. C., which was responded to by the President, after which the scientific session was begun.

The first paper read was on

PREGNANCY COMPLICATED BY FIBROID TUMOR.

BY

HENRY C. COE, M.D.,

New York.

IN opening the discussion of such a broad subject as this, I feel that it is incumbent upon me to avoid the temptation to dwell at length upon any single topic, since it would be unfair to the gentlemen who are to follow. My purpose, then, will be to review the entire field, indicating in a general way the different methods of treatment which are to be considered exhaustively by the other speakers. In order to condense my remarks as much as possible I shall omit reports of cases, with the understanding that such suggestions as may be offered are based entirely on personal

experience. One might infer from a review of the literature of this subject that the treatment of pregnancy in the fibroid uterus was governed by rules which were as clearly defined as the technic of modern abdominal surgery. The widely diverse opinions of consultants regarding the management of an individual case prove that this is far from being true.

The gynecologist who regards every case of fibroid from a surgical standpoint will naturally take a more serious view of this complication than he who is disposed to be more conservative. Moreover, the wider one's obstetrical experience, other things being equal, the more he will be inclined to assume an expectant attitude, knowing that Nature often overcomes obstacles which at first sight seem to be insuperable except by the aid of the accoucheur. When one has seen patients with multiple fibroids pass through the course of pregnancy, labor and the puerperium in an entirely normal way, or has discovered such growths for the first time after the uterus is emptied, he will be apt to regard with disapproval the sweeping statements of those alarmists who see possible danger and death in every case of pregnancy complicated by fibroids. Bland Sutton, for example (*Lancet*, 1901, page 452), introduces his lecture on this subject with the following warning: "A comprehensive study of the cases in which fibroids complicate pregnancy indicates quite clearly that the life of the woman is in jeopardy, not only so long as the fetus remains within the uterus, but also when it is expelled, whether this occurs prematurely, or at the full term." I do not believe that any one in this audience will accept such teaching as this, since it is opposed to all our practical experience. While we often use the expressions "pregnancy complicated by fibroids" and "fibroids complicated by pregnancy" as if they were synonymous, in reality there is a distinct shade of difference between them, the latter implying a condition, already serious, which is aggravated by the occurrence of conception, while the former includes cases in which neoplasms that were originally of slight clinical significance, assume importance because of the pregnancy. However, both are naturally included under the present discussion.

Fortunately the chances of conception, especially in the case of large tumors, are comparatively slight. Olshausen (Veit's *Handbuch der Gyn.*, 1897, Vol. II, p. 7651), by combining series of observations, estimates that 30 per cent. of all women with

fibroids are sterile, while Winckel states that 41.6 per cent of women with fibroid uteri who have borne children are uniparæ. No statistics have been given showing what proportion abort during the early months. How, we may ask, do fibroids complicate pregnancy?

1. By interference with the normal development of the uterus and product of conception, leading to abortion, with the attendant risks of hemorrhage or sepsis, especially in the case of intra-uterine growths. Or, if the pregnancy terminates in labor near, or at term, by causing dystocia with the well-known risks to both mother and child.

2. Through the influence of pregnancy upon the nutrition of the tumor, leading to increased growth, impaction, etc. Torsion of the pedicle in subperitoneal tumors and degenerative changes are included under this head.

3. By aggravating existing troubles, due to the size of the tumor, its unfavorable location, or the presence of adhesions. Pressure on the bladder and ureters, intestinal obstruction, edema and thrombosis may be mentioned. The cardiac and pulmonary symptoms, or renal complications attending excessive enlargement may assume serious proportions. In short, every shade of difference may be noted, from minor disturbances, or threatening interruption of pregnancy, to conditions so grave as to jeopardize the life of the patient. These facts are elementary to you, as well as the question of diagnosis, so that I shall not dwell upon them. In regard to diagnosis, we are all aware that it is easy to overlook the fact that a patient with a large tumor is two or three months pregnant, though we may suspect it on account of the rapid increase in the size of the growth, with the accompanying pain and pressure. I have reported interesting illustrative cases in young unmarried women and in patients who were supposed to have passed the climacteric. Since in every case which comes under our observation, unless immediately urgent, the first point which we consider is the stage of pregnancy, it has seemed to me that a convenient way to study this subject is by reference to the artificial division into three trimesters. It is self-evident that not only is the prognosis in the same case different at different stages, but also the indications for treatment. A rule which would fit one condition would not apply at all to the same patient if seen a month or two later. The following general plan will be followed. Cases of pregnancy complicated by fibroid may be included under three heads, viz.:

(1) Those in which pregnancy will doubtless go to full term with the prospect of a normal delivery; (2) those in which the patient must be kept under constant observation in view of the necessity of possible interference; (3) those in which there is considerable risk to mother or child, or both, before and during labor; (4) cases in which surgical intervention is absolutely indicated.

Hence the treatment may be: (1) Entirely expectant; (2) non-surgical, with possible anticipation of the date of normal delivery; (3) surgical, either (a) conservative or (b) radical. In a case in which pregnancy has not advanced beyond the third month one would be influenced somewhat by the previous history. The absence of symptoms before, as well as after, conception occurred would naturally lead one to infer that no interference was necessary. This opinion would be confirmed by the discovery of one or more small interstitial or subperitoneal growths situated above the true pelvis, which neither encroached upon the uterine cavity, nor interfered with the normal development of the organ. On the contrary, pain and pressure symptoms before pregnancy, with marked exacerbation afterward, would indicate that trouble must be expected from progressive increase of the uterine tumor. The location of the neoplasm, as well as its size, must be taken into consideration. A fibroid not larger than an orange situated in the lower segment, especially if intraligamentary, may be a far more serious matter than one as large as a cocoa-nut at the fundus, since we have to deal with the question of pressure on the bladder and ureters anteriorly, or on the bowel posteriorly. If after a careful examination, preferably under anesthesia, it appears that the tumor can not be dislodged, and it shows no tendency to rise out of the pelvis as pregnancy advances, the question of interference at once arises. Should the uterus be fixed by adhesions (with or without accompanying disease of the adnexa) the indication is clear. The simplest plan is doubtless to empty the uterus, especially if the patient is averse to any operation looking to the removal of the neoplasm. This I have done in several instances, without difficulty, the tumor frequently diminishing in size after involution had occurred. Myomectomy can be performed subsequently if desired, in order to avoid a repetition of the complication. Intrapelvic impaction may be only apparent, since under ether the tumor may be readily elevated and kept out of the way by postural treatment, bandages, etc., until the danger of fresh imprisonment is over.

If the patient is desirous that pregnancy should not intentionally be interrupted, myomectomy may be performed, with the understanding that abortion may result. Small growths so situated that they are easily accessible per vaginam may be removed by anterior or posterior colpotomy, great care being observed to avoid undue traction upon the uterus. An intrauterine polypus presenting at the os may be extirpated without interrupting pregnancy. That vaginal enucleation is not free from certain risks of hemorrhage, or injury to the ureters, I have noted in a case that I reported in which it was found post-mortem that the right ureter was so intimately attached to a small tumor in the lower uterine segment that it could not have been removed without tearing the duct. In my opinion the indications for abdominal section for the conservative treatment of fibroids during the first trimester are limited. While numerous small sessile growths have been removed from the uterine wall without interrupting the pregnancy, I would regard this operation as a clever surgical achievement rather than a useful or necessary procedure, since in the majority of these cases the normal development of the pregnant uterus is not interfered with. Moreover one removes only the superficial growths and can not be sure that more important deep-seated nodules are not left to give future trouble. Pedunculated subperitoneal tumors can of course be easily extirpated without disturbing the uterus. This is entirely justifiable in the case of movable fibroids of considerable size in which there is always risk of impaction, torsion of the pedicle, or the formation of adhesions. This brings us to a consideration of those cases in which a radical operation is indicated in the interests of the mother. The indications are the same as in the non-pregnant female—pain, pressure-symptoms and progressive increase in the size of the tumor. As regards the preference of the surgeon for supravaginal amputation or total hysterectomy we need not speak. According to Thumin the mortality of the former operation during pregnancy is still over 11 per cent., as compared with 8.9 per cent. for hysterectomy. Whatever method is elected, if possible one or both ovaries should be preserved. Between the fourth and seventh months the conditions are essentially different, since the interests of the fetus assume more importance. The observer is now better able to predict the outcome in a doubtful case. Low-lying tumors either begin to rise out of the pelvis, or else the impaction becomes more

evident and the pressure-symptoms more marked. Fibroids which encroach upon the uterine cavity interfere with the development of the growing fetus, so that abortion may occur with the attendant risks of hemorrhage and sepsis. Increased growth of the tumor under the influence of pregnancy is more apparent than before. The propriety of non-interference is evident so long as the pregnancy is proceeding normally and the fibroids are well out of the pelvis. Subperitoneal growths of considerable size, with long pedicles, will be viewed with suspicion, even in the absence of symptoms.

Whether it is wise to empty the uterus after the fifth month as an elective procedure is doubtful, especially as this procedure may be not only exceedingly difficult, but is not unattended with the risk of hemorrhage. There may, of course, be circumstances under which this is the only operative treatment permitted. This would be the most favorable time for removing a pedunculated intrauterine growth, if its presence is recognized after the fetus is delivered. Exceptionally vaginal enucleation may be successfully performed at this stage, unless the tumor is partly intraligamentary. The rough manipulation during morcellation will necessarily favor uterine contractions and the chances of sharp bleeding are not small, as well as the risks of injury to the bladder or ureters. Abdominal section would be performed during the second trimester as either a conservative, or a radical measure. All will agree as to the propriety of myomectomy in the case of subperitoneal growths which are either so placed as to give rise to urgent pressure-symptoms, have become adherent to adjacent organs, or impacted, or have suffered torsion of the pedicle, with or without resulting degenerative changes. Disease of the adnexa, appendical complications, peritonitis, etc., call for interference without reference to the question of interrupting the pregnancy. I reported a successful case of laparotomy and vaginal drainage of a large retro-uterine abscess with universal intestinal adhesions at the fifth month. The patient recovered, but miscarried two weeks later.

The question of the enucleation of sessile fibroids by the abdominal route after the middle of pregnancy admits of considerable discussion. Personally, the objections would occur to me which I have already stated. The point might be pertinently raised whether the symptoms referable to growths that are partially or completely intramural are sufficiently severe

to call for operative intervention, and if they are, is not a radical operation preferable? Or, would it not be better to wait until the child is viable and then perform Cesarean section? Naturally one would not try to enucleate a tumor which encroached upon the uterine cavity, at least not with the expectation that pregnancy would continue. I do not wish to be understood as saying that the operation is not a legitimate one under proper conditions, especially as Thumin has shown that less than 25 per cent. of the women abort. I would merely call attention to the fact that no particular object is gained in removing small fibrous nodules, which do not interfere with the development of the pregnant uterus. I may mention here, as a sort of surgical curiosity, the practice of removing the ovaries during pregnancy to check the growth of the tumor (!), where it is found to be undesirable, or impossible, to extirpate it after opening the abdomen. I have known this to be done, and as the Porro-Cesarean operation was subsequently declined, the patient lost her child and with it all hope of future maternity, though she still has the tumor. It must of course be painful both to the patient and to the surgeon to be obliged to sacrifice the fetus before it is viable, but it may be necessary to remove the uterus in order to save the life of the mother. Rapid increase in the size of the tumor, the appearance of cardiac, renal or pulmonary complications, edema, intestinal obstruction—each of these conditions, aside from constant pain and impairment of the general health, may render a radical operation imperative.

It may be assumed that after the patient has entered upon the last third of pregnancy the efforts of the attendant will be directed towards saving the child, if this can be accomplished without too great risk to the mother. Generally speaking at this stage we shall be able to assign the case to one of three classes. (1) The patient will doubtless go to full term and will be delivered without undue difficulty; (2) a certain amount of dystocia may be expected, no especial risk to the mother being apprehended, while the risks to the child may be diminished by inducing labor during the last month; (3) it is evident that the fetus can not be delivered alive per vias naturales, either at the seventh month or later.

Under the first category are included not only those cases in which no apprehension was felt from the outset, but those in which tumors originally intrapelvic have risen out of the pelvis,

or have been dislodged by the attendant, and occupy such a position that there is no danger of their presenting an obstacle to the passage of the head, while interstitial growths have not increased in size to such an extent as to interfere with the expansion of the uterine cavity.

Under the second class belong cases in which fibroids do encroach to some extent upon the pelvic cavity, but not sufficiently to prevent the passage of a compressible head of moderate size. Here the accoucher has the choice of inducing labor two or three weeks before term, or allowing pregnancy and labor to take their natural course, being prepared to perform Cæsarian section after he has become fully convinced that a living child can not be delivered *per vaginam*. The deplorable alternative, craniotomy, may of course be chosen in private practice.

But we are especially interested in the patient whom, perhaps with considerable risk and great discomfort to herself, we have succeeded in carrying along as far as the seventh or eighth month, with either intrapelvic growths of moderate size, or large multiple fibroids which seriously interfere with the functions of the abdominal and pelvic viscera. At this period we are able to predict with a degree of certainty whether the patient will go to full term, with a fair prospect of a normal or artificial delivery by the natural passages. Expectant treatment is still advisable under the conditions before mentioned—with extra-pelvic tumors of moderate size, favorably located as regards the lower uterine segment and cavity. The position of the fetus and the engagement of the presenting part by external pressure will indicate the absence of an obstacle to its progress through the bony canal. The patient will be encouraged to endure the added discomfort due to the unusual size of the uterus if assured that there is no reason to apprehend any danger. An abdominal bandage will be a great comfort at this stage. Even where a pedunculated or intrapelvic growth has been impacted earlier in the pregnancy, and has been kept out of the way by posture or by mechanical means, there is no occasion for anxiety provided that the presenting part can be caused to enter the pelvis without difficulty. It may seem wiser to induce labor at the end of the eighth, or at the beginning of the ninth month, in order to avoid possible dystocia, but this is a question to be settled only after mature deliberation, and a careful examination under ether if necessary, the relative risks to mother and child being duly considered. I would prefer to anticipate the normal date of labor in private practice, when objec-

tions would usually be raised to abdominal section except as a life-saving operation for the mother. I would question the propriety of performing a conservative operation during the seventh month, unless the indications were urgent—I mean, of course, one not involving removal of the uterus. A polypus presenting at the os which showed signs of sloughing, or threatened to interrupt the pregnancy, should certainly be removed. I reported a successful case of torsion of the pedicle of a large subperitoneal tumor with impaction and commencing peritonitis at the beginning of the seventh month. The patient went to full term after the celiotomy and had a normal delivery. Here there was no alternative except to operate without delay.

Severe pain and pressure-symptoms might render it necessary to attempt the vaginal enucleation of a tumor in the lower uterine segment before the eighth month, but I would prefer to wait if possible and perform an elective Cesarian section, as in a case which I reported to this Society. If small and favorably situated, such a growth which opposed the passage of the head might, however, be removed even after labor had begun.

Circumstances may of course arise under which it may be necessary to extirpate the uterus in order to save the mother before the fetus has reached an age at which its chances of surviving are favorable, that is early in the seventh month.

After the middle of the eighth the indications are clear—to delay as long as possible and then to perform an elective section near or at term, or at the beginning of labor, as may seem best to the operator. The decision as to the extent of the operation will depend upon the wishes of the patient, as well as the bias of the surgeon. If there is a simple tumor of moderate size in the lower segment, it may seem to be preferable to perform the typical Cesarian section, postponing the removal of the growth until later; or the operator may choose to enucleate it at the time. How far one would be justified in removing one or more sessile tumors before, or after, suturing the uterine wound, is a question which I do not propose to discuss. It does not seem, however, as if we need assume in this advanced age of surgical technic that *every* fibroid uterus need be sacrificed after removal of the fetus. The question of suprapubic amputation versus hysterectomy, as before stated, will not be discussed.

In this brief review of the subject much has been omitted which I hope will be considered by the succeeding speakers. It has

been my aim to urge conservatism so far as it can be practised without undue risk to the patient. Between the cases in which non-interference is clearly indicated and those in which a radical operation is imperative there is a large class in which there is wide room for difference of opinion. Constant observation in a doubtful case, repeated examinations, and a thorough familiarity with the physiology and pathology of pregnancy, can alone guard one against the error of interfering rashly and prematurely, or the opposite mistake of trusting too blindly to the natural forces. Although not properly included under the subject before us, it seems pertinent to ask whether it is not incumbent upon us as gynecologists to follow the trend of modern medicine and to endeavor to guard our patients as far as possible against the dangers which we have been considering. While the regulation of marriage is not yet controllable, either by the physician or by the law, the former is in a position to advise, even if his advice is not carried out. Personally I feel that it is our duty to warn a young woman against the risks of pregnancy where she has a fibroid tumor which may give rise to serious trouble, even though it has never caused any marked symptoms. If she is determined to marry, nevertheless, the propriety of performing a conservative operation (myomectomy) for the removal of the tumor, may be considered. Under proper limitations this would be quite justifiable, and numerous successful cases have been reported in which normal pregnancy and labor have followed. How far we can go in advising married women with fibroids to avoid conception is a question which each one must answer to his own conscience. In the presence of a neoplasm which has already assumed surgical importance, it certainly seems unwise to allow a patient to incur the additional risks of a pregnancy which we know can only terminate unfortunately.

8 WEST SEVENTY-SIXTH STREET.

DR. JOSEPH TABER JOHNSON, of Washington, D. C., read a paper on

FIBROID TUMORS COMPLICATING PREGNANCY: SHALL THEIR SURGICAL TREATMENT BE BY HYSTERECTOMY OR MYOMECTOMY?

Cases of pregnancy complicated by fibroid tumor were fortunately the rare exception instead of the rule. He knew of no statistics which stated with any pretense to accuracy their exact fre-

quency, as they did in regard to puerperal eclampsia, placenta previa, or rupture of the uterus. Few men had acquired a large experience in the management of this complication, while many had in a large practice, both obstetrical and gynecological, met with only one or two cases, and some had never seen a pregnancy thus complicated. His own experience was limited to two cases, equally successful so far as the mother was concerned, in one of which he performed a supravaginal hysterectomy, the uterus containing a five months' fetus as well as a large fibroid tumor. In the other case, the operation was terminated as a myomectomy. The woman was four months pregnant; she was delivered five months later of a live child, and both mother and child did well. He was not in a position to speak with very much authority on either side of this important question, but his inclinations were upon the side of the conservative operation, which had for its object the saving of the child.

When the tumor was so situated as to threaten the safe continuance of the pregnancy, and to jeopardize the life of the mother during labor, some kind of operative interference was demanded in the interest of humanity, and of good surgery. Formerly supravaginal hysterectomy would have been the operation of necessity, but with the evolution of a safer and more comprehensive abdominal technique, myomectomy should become more and more the operation of choice. On account of the many variations in size, location, rate of growth, and manner of attachment of these tumors, no definite and universal rule of procedure could be adopted for their treatment. Every case would have to be managed according to the exigencies which arose as pregnancy advanced, and not a few would present themselves where the safety of the mother and the unborn child would be more conserved by practicing such a masterly inactivity as consisted in watching and waiting for the development of surgical indications, which might never arise, in the mind of the conscientious and conservative surgeon.

It was known that many women had gone safely through pregnancy and labor when these otherwise normal processes had been complicated by fibroid tumors. On the other hand, it was known that the safety and existence of pregnancy had been seriously menaced and labor rendered difficult, dangerous or impossible, by fibroid tumors so located, and of such a size and causing such symptoms as to convert a normal condition and a normal process into one of great danger and possible disaster. These dangers to the mother were not passed with the difficult, though successful, delivery of her child. The complicating fibroid might be of the submucous or interstitial variety, and so interfere with the safe and normal contraction of the uterus as to permit and, indeed, to cause an uncontrollable post-partum hemorrhage. As these complicating tumors were not amenable to medical or electrical treatment during pregnancy, for obvious reasons, the physician was driven to surgical relief in the class of cases where this remedy was not worse than the disease. As we were barred by existing

complicating conditions from practicing many of the minor methods of treatment, such as electricity in any of its various methods of application, oophorectomy, curetting, ligation of the uterine arteries through the vagina, we were driven to the selection of the major operation in these cases where surgical relief of some kind was imperative. Shall it be hysterectomy or myomectomy? One could not say one or the other in all cases. While one could remove the complicating tumor or the uterus and its contents in nearly all cases, he could only remove the tumor and leave the uterus in a reasonably safe condition, free from the dangers of hemorrhage or abortion, in that class of cases where the tumor was favorably situated for such an operation, to entitle it to be considered as the operation of election. The statement that it would be unsurgical to attempt the removal of an interstitial or submucous fibroid tumor complicating pregnancy by a myomectomy required to be supported by no argument. It was a self-evident fact that such cases would have to be treated, if any operation was required, by hysterectomy. If, however, the tumor was subperitoneal, and especially if it was pedunculated, myomectomy had been done sufficiently often. Under these circumstances, with the improvement of abdominal surgical technique in the last two decades, this had become a comparatively safe operation.

PREGNANCY AND LABOR COMPLICATED BY MYOMATA.

BY

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It is not to be denied that until the subject was illuminated by the masterly exposition of Hofmeier, the dangers incident to this complication of pregnancy were vastly overrated. The consequence of this fear of disastrous consequences attending the act of birth led in times, not so long since passed, to operative procedures, which, to say the least, were unnecessary. As preliminary to the main question, it is interesting to study the influence of the myoma on sterility and fertility. The views of Hofmeier¹, who has enriched this theme by a number of valuable contributions, are not in accordance with those generally accepted, but based, as they are, on careful analysis of a large number of observations, may well challenge our attention. He insists that in by far the greater preponderating number of patients, the myomata

¹Zeitschrift für Geburtshülfe u. Gyn. Band XXX.—Heft. 1. u. Band XLIII. Heft. 3.

are entirely without influence on the sterility which is dependent on other causes or, at any rate, they play a subordinate rôle, and that in no case would it correspond to the actual relations, as a matter of course, to bring the myomata into a causal relation to the sterility. He further contends that the myomata have had no influence on the fertility, since it almost always dates back to years when, in all probability, there were no myomata present, and its cause must be sought elsewhere than in the myomata appearing at a much later period. Undoubtedly Hofmeier is right in asserting that the presence of a myoma in a sterile woman should not, without other evidence, be assumed as the cause of sterility—other causes may be operative. To deny entirely the influence of myomata on fertility, however, is to occupy untenable ground. Olshausen complains justly that the fewest possible authors who discuss this subject make a distinction in regard to the seat of the myoma, but count, in their statistics, all myomata as equivalent. No reasoning can be more fallacious than arguments based on such premises. The site of the myoma is a matter of prime importance. Small subperitoneal myomata interfere with conception only under rare circumstances and do not disturb the course of pregnancy. Large subperitoneal myomata more frequently form an obstacle to conception by disturbing the normal relations of the annexa, but at times may simply render conception not impossible but more than ordinarily difficult so that it may take place under circumstances provisionally unknown to us. Hofmeier thus expresses himself: "The myoma in itself I should not regard as a favoring factor, but it is nevertheless an undoubted fact, that in women affected with myomata the entire activity of the sexual apparatus is maintained an extraordinarily long time, consequently that of the ovaries, and thus it is that the possibility of conceiving in them is present in a heightened degree." This is especially true of subserous myomata. Interstitial and still more submucous myomata render conception difficult to a marked degree. This is due to the hyperplastic endometritis and changes in the cavity of the body. My observations agree entirely with those of Olshausen when he declares that when an interstitial myoma corresponds in size to the third or fourth month of pregnancy, it causes an absolute bar to the occurrence of conception. Polypi and cervical myomata, respectively, interpose obstacles in the way of conception, of a greater or less degree. In these cases of interstitial and submucous myomata, if pregnancy occurs, it may run its normal course, with-

out disturbance, especially if the tumors are small, but, on the other hand, abortion or premature birth may ensue. The defective distensibility of the walls of the uterus, the limitations of space of its cavity as well as of the abdominal cavity, the possible retro-deviation caused by the myoma, and the changes of the mucous membrane are reasons enough to explain the frequency of the premature interruption of pregnancy under the circumstances just mentioned. At times, hemorrhages are observed in the case of submucous myomata during pregnancy, as might naturally be conjectured would be the case. Placenta prævia has been observed in a number of cases and this *à priori* consideration would suggest as likely. Pregnancy favors the growth of the myoma and leads to its edematous softening. Some observers have noticed a hemorrhagic disintegration. In pedunculated subserous myomata axis rotation of the pedicle may ensue, and as a consequence of this, as well as by perforation of hemorrhagic disintegrating foci, peritonitis may be caused. These, it must be remarked are, however, rare events. If the nutrition of the tumor is greatly impaired, gangrene may take place with fatal result. By the simultaneous growth of the pregnant uterus and large myomata severe phenomena of compression of the abdominal and thoracic organs may originate especially in those women who conceive late in life, after a long preceding sterility, and attain an unbearable degree. In the first four or five months the diagnosis of pregnancy in a myomatous uterus may be attended with great difficulty. Especially difficult is the diagnosis in those cases in which a tumor of large dimensions overshadows, as it were, the small pregnant uterus. Difficulty, too, arises in those cases in which, notwithstanding the existence of pregnancy, hemorrhages persist. The differential diagnosis between retroflexion of the pregnant uterus and myoma of the posterior wall of the uterus is, at times, attended with exceeding difficulty. When a myoma possesses a soft consistency it may simulate a gravid uterus very closely. In a case which came under my observation several years ago, the objective examination seemed almost conclusive as to the existence of pregnancy. In order to eliminate that possibility I had to ask the patient point blank if it were possible that she might be pregnant. She assured me that this was absolutely out of the question, as she had been a widow for several years. The subsequent history showed the true condition due to a soft myoma. When a myoma which has been long stationary begins to grow suddenly the possibility of the coexistence of pregnancy must

be borne in mind. It must not be overlooked that this growth is often only apparent and is merely simulated by the elevation or differentiation of the tumor from the pregnant uterus. As soon as the gravid uterus has reached that stage of development that carries it up into the abdominal cavity, it contrasts in a striking manner by its greater softness with the complicating myomata. Even interstitial tumors, which are most likely to escape recognition, come into prominence if uterine contraction happens to supervene during the examination. To illustrate the difficulties in the way of a correct diagnosis I cannot do better than to quote an observation of Ahlfeld's, who remarks, "Even after opening the abdominal cavity, I was in one case unable to decide whether I had before me an impregnated uterus of the twentieth week, or a soft fibromatous uterus. Further observation showed the latter to be the case." "In order to treat this disorder rationally it is absolutely necessary, in the first instance, to study the influence of myomata on birth and the puerperal state, in addition to that on pregnancy, above mentioned." In a paper previously quoted from the pen of Hofmeier¹ this author speaks as follows: "I believe I may say most positively from my experience, that the complications which myomata present during pregnancy, birth and the puerperal state, cause actual earnest dangers only in a few cases, and may be quite essentially diminished by patience, a cautious treatment of the birth, especially by its strict antiseptic conduct, and by careful attention to the placental period." The opinions of this author ought to carry great weight from his long experience and acknowledged ability, but his views are at variance with those of many other equally eminent authorities. I am inclined to the belief that he underestimates the significance of this complication. It will be observed that he speaks in general terms of all myomata and does not distinguish them according to site. As a matter of fact the significance of myomata for birth and the puerperium is very different according to the situation. Subserous myomata, as a rule, produce no disturbances. Although rarely, it may happen, that the pedicle becomes twisted and impaired nutrition occurs with its consequences. In a case which I reported to the New York Obstetrical Society, a number of years ago, a subserous myoma with a long thin pedicle became detached from the uterus and becoming fixed in the pelvis caused phenomena

¹Vide Lehrbuch der Geburtshülfe, p. 221

of incarceration. There was no pregnancy here, but such an accident might occur if pregnancy supervened in a similar case. A subserous myoma becomes of especial significance when situated in the cervix, as in this case, it may offer an obstruction to the engagement of the child's head in the superior strait, or it may simply be impossible for the child to pass through the pelvic canal. The influence of interstitial myomata, when situated low down in the cervix, may be of profound significance. It is a matter of clinical observation, however, and may be regarded as the rule, that cervical myomata, if they do not extend very deep in the pelvis, with the ascent of the uterus, gradually recede from the pelvis, as pregnancy goes on, and so leave the pelvis free for the passage of the child's head. In exceptional cases this occurs during the act of birth. It is not to be denied that interstitial and submucous myomata exert a positive influence on the presentation of the fetus. According to Olshausen¹ in his tabulation of a large number of cases of birth 54 per cent. were head presentations, 24 per cent breech presentations and 19 per cent transverse presentations. This, however, is a matter of subordinate importance. It has been fully established by clinical evidence that interstitial and submucous myomata are, at times, dangerous in consequence of the intense hemorrhages they evoke in the third stage of labor and in the puerperium, as well as by the gangrene with which they may be affected. Fortunately, these are rare events. In multiple interstitial myomata the contractile power of the uterine walls is often defective and hence the danger of hemorrhage. With reference to treatment no general rules can be given applicable to each case. The circumstances belonging to the given case must be carefully considered before arriving at the conclusion that operative intervention is indicated. Formerly the dangers incident to myomata, complicated by pregnancy, in causing dystocia, were greatly overrated, as already mentioned, and hence, in many cases operations were performed, which we now know were contra-indicated. It was, therefore, a most important addition to scientific medicine when Hofmeier demonstrated, in successive publications, that pregnancy was not affected as a rule by the myoma, and that the majority of women thus affected attained to full term and gave birth to their children with safety. During pregnancy the plan of treatment, as a rule, is an expectant one. The indications for intervention are furnished by

¹Lehrbuch der Geburtshülfe von D. R. Olshausen und I. Veit—5th Aufl

disturbances or conditions which render delay dangerous, as for example when the myomatous pregnant uterus becomes incarcerated. The artificial interruption of pregnancy which first suggests itself when an active procedure is indicated, is attended with grave dangers and should not be entertained. In these circumstances the expulsion of the ovum may be delayed, there may be uncontrollable hemorrhage, the ovum may undergo decomposition, the portion of the myoma projecting into the uterine cavity may undergo necrosis or gangrene and the conditions altogether be favorable to the production of septic infection. When symptoms show themselves, which make a further continuance of pregnancy a menace to life, a very rare contingency it must be admitted, laparotomy is indicated either for the performance of a myomectomy or supravaginal amputation of the uterus. Olshausen expresses the opinion, in which I fully concur, that the ablation of polypi and especially the enucleation of submucous cervical myomata should be postponed until the end of pregnancy because labor may be expected to follow closely upon the operative intervention. Enucleation through the vagina should not be attempted if the attachment extends so far upward as not to be within the reach of the finger. I entirely concur in the view expressed by Donald of Manchester, in his excellent paper upon this theme read before the London Obstetrical Society, and published in the Transactions of that Society for 1901, that, when the tumor is subserous and has a well-defined pedicle, the risk of operation is no greater than that of ovariectomy during pregnancy. When he goes farther and remarks: "In every case in which a tumor of this kind is diagnosed during pregnancy, operation should be undertaken without delay," I am not quite prepared to follow him. Admirably says Howard Kelly¹: "Mere prophylaxis—that is to say, operating when there are no urgent symptoms, on account of dangers which may arise—has no field here." The existence of a myoma in itself does not furnish an indication for operative intervention, it is only when symptoms are caused by it, which jeopardize life and health, that operative interference is justifiable. When, therefore, the disturbances evoked by the presence of the tumor assume a menacing character, so as to make the further continuance of pregnancy undesirable, it may be necessary to have recourse to enucleation *per vaginam*, if it is a cervical myoma, or, as remarked, supravaginal amputation may be indicated

¹Operative Gynecology, Vol. II., p. 410.

or myomectomy. During labor, if the tumors are high up, our policy should be that of masterly inactivity. Myomata which project as polypi into the vagina should be ablated at once. If the tumor is wedged in the pelvis cautious attempts at reposition may be made, although they are usually futile, if the tumor has shown no inclination to ascend, in the unfolding of the cervix. If these attempts do not succeed and the limitation of space is not excessive we may still hope that the serous infiltration of the tumor may have softened it to such a degree as to allow the passage of the child. Here podalic version is preferable to the high forceps operation, as delivery can be accomplished more easily and with less injury to the soft parts. When the myoma presents an absolute obstacle to the birth of the child, the Cesarean section is indicated. This operation for such complication is also indicated in the latter part of pregnancy, supposing the child is viable, and dangerous symptoms manifest themselves which threaten the life of the mother. It is important to bear in mind that in the performance of the Cesarean section the correct point of time must be selected, not too soon before labor pains have begun and not too late when the chances of a successful issue have been greatly diminished. Whether amputation or total hysterectomy shall follow the Cesarean section will depend to some extent on the site of the tumor and also on whether infection has likely taken place or not. In the latter case total hysterectomy is clearly indicated. An interesting case belonging to the category now under discussion I had the opportunity of observing last summer. On the fourth of July I was called in consultation, by Dr. Alfred B. Tucker, to a case in which a woman, according to the clinical history, had been in labor for several days and yet had made no progress, as the pelvic canal was occupied by a large myoma which sprang from the lower segment of the uterus. The os uteri was so distorted that it could be felt with the greatest difficulty by passing around and under the tumor towards the right sacro-iliac junction. This patient had given birth about two and a half years before to a living child and at the fourth month of the present pregnancy had undergone an operation for myomectomy by laparotomy. The scar on the abdominal wall, in the median line, was plainly visible and from its length the tumor removed must have been large. Unfortunately for the patient the operating surgeon neglected to remove a small subserous myoma in the erroneous belief that it would hardly grow to any extent and therefore was a negligible quantity. Careful examination of this patient showed that the

tumor was firmly fixed in the pelvis and offered an insuperable obstacle to the passage of the child. As the child was living, the woman having attained the full term, Cesarean section was indicated. The operation was performed by Dr. Tucker, with my assistance, the operator exhibiting masterly skill as usual. It was impossible to enucleate the tumor, on account of its site and other unfavorable conditions and therefore, total hysterectomy was decided upon. This was promptly done, and the patient's condition was such, after the operation, as to promise rapid recovery. She died, however, I regret to say, after a few days from ileus. This case presents several points of interest and is especially instructive as showing the importance of removing all myomatous germs when performing the operation of myomectomy. Reference has been made to the fact that *post-partum* hemorrhages are apt to occur in the case of submucous myomata. One of the worst cases of such hemorrhage it has ever been my fortune to encounter, occurred to me a number of years ago and in order to control it I had to make an intra-uterine injection of tincture of iodine. The careful supervision of the delivery of the placenta is, therefore, the imperative duty of every physician who has under his care a case of myoma complicating labor. In conclusion it may be maintained as a truth, established by abundant clinical proof, that while in the preponderating majority of cases women affected with myomata may be expected to attain to the end of pregnancy and pass safely through the perils of childbirth and the puerperal state, there are, on the other hand, in a minority of cases, such conditions or disturbances due to the myomata that threaten the life of the patient, to the degree that surgical intervention is clearly indicated; it is simply, therefore, the part of wisdom to be prepared for any emergency.

63 WEST FIFTY-FIRST STREET.

DR. EDWARD REYNOLDS, of Boston, stated that he happened to have had a considerable experience with fibroids complicating pregnancy, labor, and the puerperium. He spoke of the treatment of large incarcerated fibroids in advance of the head at or near term, and said he had seen ten such cases, but owing to the destruction of some of his earlier records, he had details of only five. No one of these tumors was smaller than the seven months' fetal head. In three of them the large incarcerated fibroid was kept within the bony walls of the pelvis, so that the finger could be introduced with difficulty between the tumor and symphysis. In each case the woman was either delivered normally or by forceps. Fibromyoma of the non-pregnant uterus became during pregnancy

a soft tumor, and tended to alter its shape, to reduce itself and to rise until it could be lifted above the pelvis by taxis. Anyone who had had much experience with the size of the uterine vessels at term would not unnecessarily rush in to do operations on intraligamentous fibroids, such as these incarcerated tumors were. Only the inexperienced would attempt such operations when they could be avoided. He protested against operating with the knife on cases of fibroid tumors complicating pregnancy at or near term.

He would regret most deeply to let it go forth from the Society that the members approved of the principle of applying one procedure to hospital patients, and another to patients in private practice, particularly in matters of life and death. In all friendliness to Dr. Coe, he could not allow such a statement to go out without criticism. Moreover, he knew from experience that in the best private practice, if a man stood boldly for what he believed to be right, he was less likely to meet with criticism or opposition. Yielding on such points to the demands of patients was wrong in principle. It was impolitic. There was no need of it. He had never met with opposition to Cesarean section in private practice, when the indications for such a procedure had been clearly pointed out and emphasized. He thought that obstetricians should be very careful to apply one principle in matters of life and death to all patients who came under his charge.

DR. J. DUNCAN EMMET, of New York city, said that he was pleased with the conservatism displayed in the paper of Dr. Coe, as regards operation on these cases. However, he was constrained to remark that unquestionably certain myomata must be removed either by myomectomy or by the radical removal of the uterus, while others did not interfere with the course of pregnancy. He was glad that the essayist emphasized his preference for myomectomy over the removal of the uterus, for the reason that the latter was a serious thing in its after-effects, and it should be avoided whenever possible.

DR. WILLIAM R. PRYOR, of New York city, expressed himself as being rather conservative in dealing with fibroid tumors complicating pregnancy. If the tumor or tumors were situated in the anterior uterine wall, and were very small, he said they would slide up over the pubis without any trouble. In cases that had not advanced to the seventh month, where the tumors seemed to constitute an actual bar to delivery, the tumors, by their softness, accommodated themselves to the situation. Retroperitoneal tumors, on the other hand, on account of their situation, demanded operative intervention, as Cesarean section. These tumors were with the greatest difficulty handled through the abdomen. He had in two instances, in one at four and a half months, in the other at five and a half months, operated by a method which he described diagrammatically on the blackboard. This method consisted of morcellation of the tumor. He uttered a word of caution against the infliction of trauma on the cervix by the traction forceps, saying that such trauma was apt to lead to miscarriage. On

the other hand, he said it was astonishing how much trauma could be inflicted on the posterior wall of the uterus without a tendency to miscarriage; whereas the same amount of trauma inflicted on the anterior wall or bilaterally would bring about miscarriage. Trauma, therefore, should be only inflicted on the fibroid itself.

He spoke of the value of mammary extract administered to these women, beginning it early and carrying it through lactation. Under the influence of this extract he had seen subperitoneal and interstitial fibroid tumors materially decrease in size.

He expressed himself as being heartily in accord with the conservatism manifested in these cases, for he had seen women delivered with intraligamentous fibroids without any trouble at all.

DR. HENRY D. FRY, of Washington, D. C., desired to speak of one point in Dr. Coe's paper, namely, emptying the uterus in these cases. He thought the cases were very few in which one would be called upon to empty the uterus, or, rather, in which that would be a better line of treatment. The treatment was either expectant or radical, owing to the fact that the tumors which would indicate emptying the uterus early would necessarily be located in the lower segment of the uterus. These tumors would undergo softening, and would be drawn up above the brim of the pelvis, thus enabling pregnancy to go on, and finally the child being delivered normally at the end of labor. This was so common an experience that one could not tell in any case as early as the third month what would be the history. It ought to be taken for granted that any tumor at the third month was going to follow that course, so for that reason he did not believe one was justified in emptying the uterus, as there were dangers attending these cases. Drainage was bad. It was difficult to dilate the cervix where the fibroid was situated in the lower uterine segment around the cervix. If one succeeded in getting out the fetus, some parts of it might remain, and undergo decomposition, so that it was extremely difficult, if not impossible, to treat such cases by the ordinary method of treatment of retained secundines in the uterus. The dangers of emptying the uterus in the first semester were great. Again, if one succeeded in accomplishing it in a young married woman, he would probably have to go on indefinitely doing so during subsequent pregnancies. He believed that we should allow the cases to go on as long as possible, and if the period of viability was reached, if suffering became so great from pressure or other reasons, then treatment should be radical, consisting of either myomectomy or hysterectomy. Personally, he favored hysterectomy in these cases in preference to myomectomy.

DR. WALTER P. MANTON, of Detroit, Michigan, said that cases of fibroid tumors complicating pregnancy were exceedingly rare in his experience. Of perhaps five or six thousand cases of confinement seen in both private and hospital practice, he had probably observed five or six cases where these tumors complicated pregnancy.

He called attention to one point which was not brought out by

the essayist, namely, that in the majority of cases of interstitial submucous fibroids, abortion almost inevitably occurred between the third and fourth months. He had seen many cases on which he had subsequently operated.

DR. REUBEN PETERSON, of Ann Arbor, Michigan, attacked one or two statements that had been made, namely, that in the presence of interstitial fibroid tumors complicating pregnancy myomectomy was entirely contraindicated.

As to the statement made by Dr. Reynolds, that these tumors became softened by pregnancy, so that they became soft myomata, his experience had demonstrated that this was incorrect. He spoke of the case of a woman upon whom he had operated some months ago. She was about five months advanced in pregnancy. There was a tumor about twice the size of a fist, which was situated low down in the pelvis, producing severe pressure symptoms. He thought it was inadvisable to allow the woman to advance further in pregnancy, even though he could push the tumor up above the brim of the pelvis, but it soon settled back again. It seemed to him questionable whether the tumor could be retained above the brim of the pelvis by any form of support, and as the woman was suffering considerably he operated. The tumor was of the interstitial variety. He resorted to myomectomy, enucleated the tumor, and after he had removed it from its bed apparently the membranes were underneath his finger, so that it was not subperitoneal, but interstitial. Hemorrhage was readily controlled, and the incision closed. The woman went on to full term, and was delivered subsequently of a child. The tumor was not softened during pregnancy.

He was rather surprised at the extreme conservatism displayed, and while he believed in conservatism, and while most of the members had seen cases go on to full term and be delivered without any help, safely, still, with abdominal surgery advanced as it is at the present time, these tumors could be safely removed at the fifth or sixth month readily. He thought there was too much conservatism displayed both in the papers and discussions.

DR. GEORGE J. ENGELMANN, of Boston, had twice observed softening and disappearance of fibroids after confinement. In one instance the tumor was large and grew rapidly during the course of pregnancy, and from a hard fibroid it became a soft tumor. This tumor disappeared rapidly. It was about the size of a child's head, and disappeared in the course of four or five months. It became very much reduced in size during the time the patient was in the hospital.

In the other case the tumor was smaller, and perhaps would not have obstructed labor. In both instances the growths were subserous. He had seen an interstitial fibroid tumor, which had become submucous, enucleated and expelled soon after the placenta. These cases were observed many years ago. He had not seen a similar condition since. However, he had seen a small fibroid soften and disappear in one instance after a violent hemorrhage.

He believed that this softening, which occurs frequently in the course of pregnancy, led to a retrograde metamorphosis and disappearance of the tumor, and therefore he would urge practitioners to use the mammary extract, thus favoring the processes which nature intended during pregnancy and the puerperium.

DR. CHARLES M. GREEN, of Boston, referred to the frequency of fibroid tumors complicating pregnancy. He had seen two cases of fibroids within a month, in one the uterus having seven fibroids on its anterior surface. These were not large, the largest one not being larger than a hen's egg. He did not see the patient until after delivery had taken place. The case was a hospital one. No trouble had ensued. These tumors involuted down, and were hardly to be felt. The other patient had one quite large pedunculated subserous fibroid. He did not see the patient until delivery was effected. This woman was watched with considerable interest to see what would happen, but she subsequently made a complete recovery, the tumor having diminished in size to that of a hen's egg.

In regard to the retrograde changes that took place in these cases, he spoke of a case that he had watched through a second pregnancy, during which the fibroid did not enlarge, and the woman was delivered without any complication whatever. The reason for conservatism in these cases was that the tumors very frequently took care of themselves. None could say that they always did so, but they generally did.

DR. JAMES CLIFTON EDGAR, of New York City, stated that these tumors took care of themselves in a large proportion of cases, and caused very little or no trouble. Recently, he had occasion to look up the statistics for the last fifteen years in the services of the four maternity hospitals in New York City, and while he did not see every case that was confined, he had knowledge of the history of the cases, amounting to approximately sixteen or seventeen thousand cases of confinement in the Emergency and City Hospitals, and in his service. Of his own experience, he could recall but half a dozen cases of fibromyomata or myomata that actually caused dystocia, and in a large number of cases the tumors caused absolutely no obstruction that could not be overcome by a difficult version or by a difficult forceps, or by nature with prolonged labor. He said it would seem from the statements that had been made that a large proportion of the cases took care of themselves. He would never forget the statement made by the late Professor Lusk some fifteen years ago, when they had to deal with a case at the old Bellevue service of the Emergency Hospital. It was one of absolute dystocia, and something had to be done. The case had been watched by a midwife, was brought to the hospital in an ambulance, and the question arose as to the proper procedure to pursue. Hysterectomy at that time, or total extirpation of the uterus, did not have the stand it did to-day, and so the choice of operation was between Cesarean section and extirpation of the uterus. The statement was made that he never knew of a case of absolute dys-

tocia that had recovered after hysterectomy where the tumor was left at the time. A large number of physicians were in consultation in this case. In two other cases simple Cesarean section was done, and the three patients died presumably from sepsis. He could recall possibly three cases, although he was not absolutely certain about it, where hysterectomy was performed. Dr. Polk had performed one of them at the Bellevue Hospital in his service, where complete recovery ensued. However, from a large series of cases, where a number of fibroid tumors were present, comprising some sixteen or seventeen thousand cases of confinement, he could not recall more than six cases of real dystocia which was produced by them.

DR. ARTHUR W. JOHNSTONE, of Cincinnati, Ohio, said it was seldom that the obstetrician had to do more than to watch the case and guide it to a successful termination. Time and again he had seen cases in which pedunculated fibroids rose above the uterus that had been situated low down and the patients had gone on to full term without any trouble. His experience was in accord with what had been said with reference to the shrinking of fibroids after labor. He had seen a fibroid on the fundus of the uterus, which was as large as a baby's head at the time of labor, yet which, six months afterwards, was not larger than that of a turkey head. Subsequent pregnancy in such cases had shown that the tumors gave no further trouble.

DR. BEVERLY MACMONAGLE, of San Francisco, stated that there ought not to be a distinction made between private and hospital patients; that each individual case should be judged according to its merits, and each individual treated accordingly. He desired to put himself on record as being entirely in accord with the idea expressed by Dr. Coe that all patients, so far as the physician was concerned, were equal, and should be treated equally with a conscientious idea for the good of the patient.

DR. COE, in closing the discussion on his part, said that his experience seemed to have been somewhat different from that of the speakers, yet he could not believe that the cases under discussion were so rare as represented, or that his experience was so exceptional.

Relative to the statement made by Dr. Reynolds, he thought it should be modified. He did not think one could go ahead in the case of a private patient the same as he could with a hospital patient, for the reason that the financial consideration did not enter into the case. In private practice, where one had a number of consultants to deal with, and a number of different things to consider, he could not do the same with that case that he could with a hospital case. He would like the views of the Fellows on this subject. Hospital cases were oftentimes more serious than private cases, and therefore the surgeon felt responsibility more, as patients placed themselves in his hands. He did not think the same rules could be applied to private patients that are applied to hospital cases.

DR. EDWARD REYNOLDS, of Boston, said he hoped no gentlemen present would suppose that he meant to imply that Dr. Coe or any member would prostitute his conscience for a fee. He did not mean to make a personal application.

DR. HARRISON, in closing the discussion, was glad to observe that the general consensus of opinion was in favor of conservatism in the treatment of the class of cases under discussion. The arguments that had been advanced by Dr. Engelmann and others were of paramount importance, and during the puerperal state retrograde metamorphosis of these tumors was to be expected. He had observed this to his entire satisfaction.

Being connected with the New York Infant Asylum, he had had an opportunity of seeing a large number of women belonging to different races. This asylum was largely patronized by the colored people. He emphasized the importance of making a distinction between the white and colored races. In the negro race myomata were exceedingly common, and it had been his good fortune to observe a number of cases in negro women in which myomata complicated pregnancy.

COMBINED BISECTION OF TUMOR AND UTERUS WITH PARTIAL ENUCLEATION OF BISECTED TUMOR IN ABDOMINAL HYSTERECTOMY FOR LARGE FIBROID TUMORS IN BODY OF UTERUS.

BY

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Atlanta, Ga.

(With Illustrations.)

LARGE fibroid tumors filling the pelvic cavity and extending laterally above the pelvis to the walls of the abdomen are not infrequent. Their removal by hysterectomy when the broad ligament is first ligated from above downward is a procedure often beset by many mechanical difficulties. The practical inaccessibility of these ligaments, under the conditions mentioned, and extreme tension upon which the tumor puts them often subject the patient to such a prolonged operation and so tax the surgeon's ingenuity that any plan promising more working space should meet with careful consideration. I take pleasure, therefore, in reporting a procedure which greatly expedites the removal of such fibroids and gives the operator at all times excellent control over the blood supply of the parts.

The operation has as its underlying principle the bisection

of tumor and uterus, together with subsequent partial enucleation of each half of the tumor separately.

In abdominal operations of this kind I have been accustomed to use, instead of sponges or other more or less inefficient devices, a special retainer to keep the intestines and omentum well up out of the way of the surgeon. So satisfactory has it been

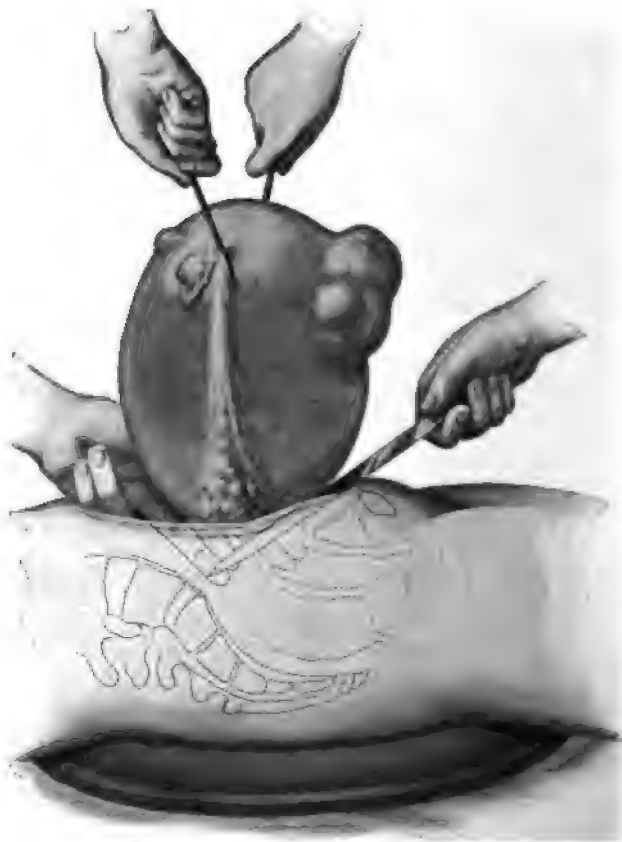


Fig. I. First step in bisection of tumor.

that I shall ask your indulgence to describe it briefly. It is made of several layers of gauze stitched snugly over hard rolls of absorbent cotton so as to make a pad some fifteen inches long, two to four inches wide and three-fourths of an inch thick. A thin layer of absorbent cotton is rolled tightly into small rolls about three-fourths to one inch in diameter, and then strong thread or tape is wound round them firmly to increase the density and

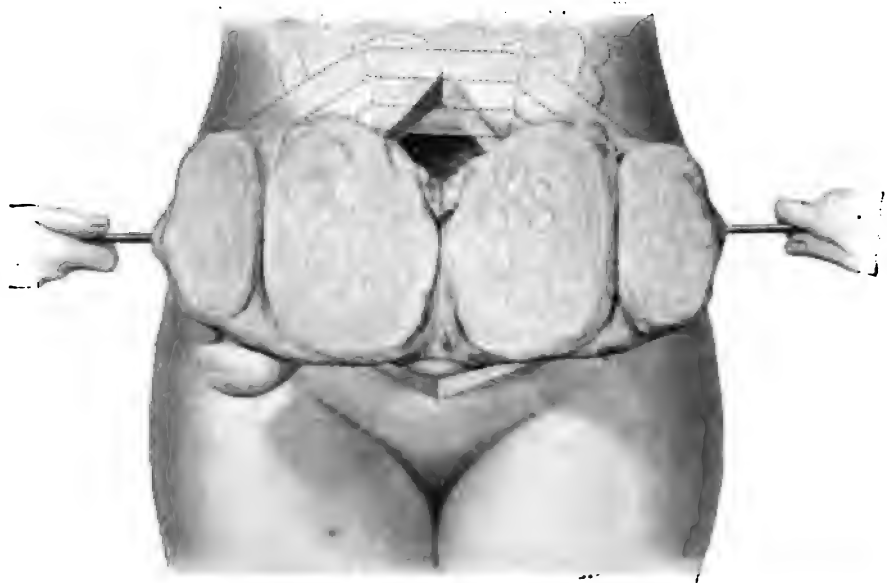


Fig. II. Tumor bisected. Dotted lines show author's pad for holding up intestines.

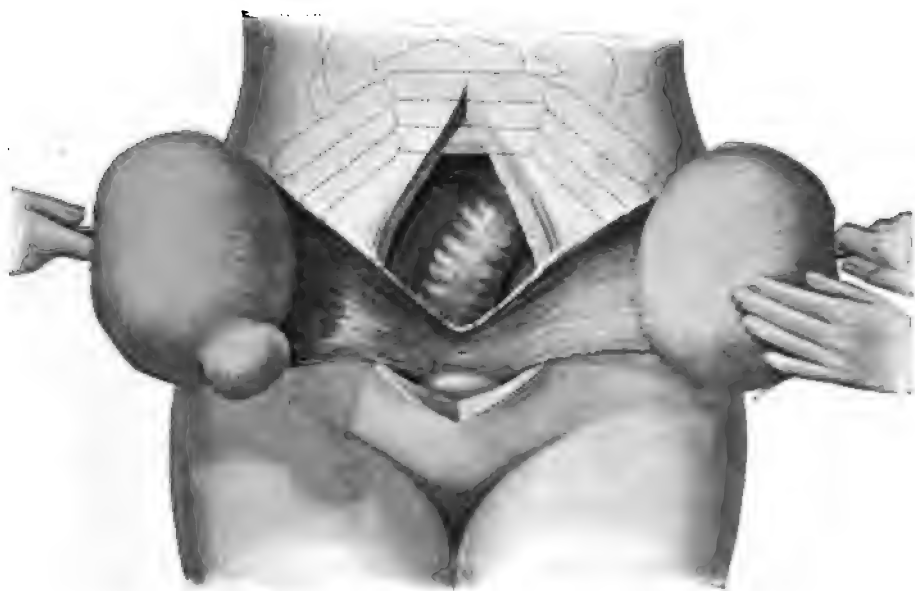


Fig. III. Halves of tumor enucleated and rolled out.

stiffness. These are cut into lengths of five inches and placed in three rolls of three rows each, and covered on each side with three or four layers of gauze. The gauze is stitched around the edges first, and then between the rolls of cotton and lastly across the pad in two places between the ends of the cotton rolls. This last makes a hinge arrangement which permits bending or shaping the retainer in the form of a semicircular dam above the pelvis which holds the intestines and omentum out of the field in a most satisfactory way. It has the additional advantage of not being easily lost in the abdomen.

When the abdomen has been opened and the tumor delivered through the incision, the retainer is introduced so as to clear the

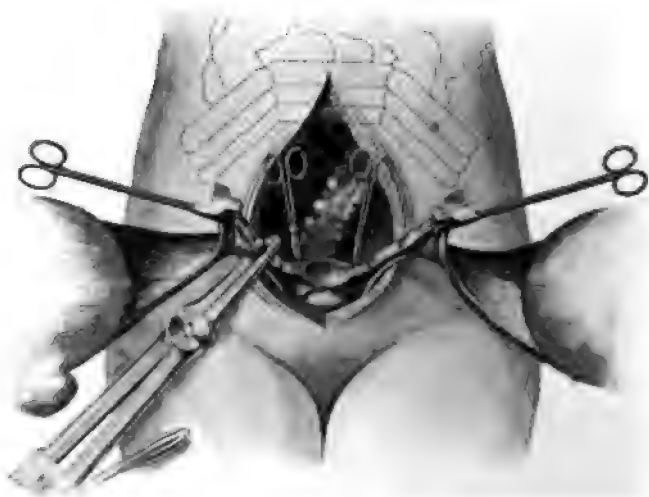


Fig. IV. Uterine arteries clamped angiotribe on right broad ligament.

pelvic field for the manipulations to follow. The broad ligaments and cornua of the uterus are caught with morcellation forceps, as described by Kelly in bisection of the uterus. The ovarian arteries are thus compressed, and traction on the tumor upward checks the flow through the uterine arteries. The large veins on the surface of the fibroid and uterus (usually anterior), except those obstructed by the forceps, at once become empty.

The tumor is rapidly bisected in the median line. If it rises sufficiently high a large hip-joint amputation knife is thrust through the cervix or corpus uteri, and the tumor cut open from below upward, the bladder having been previously pushed off. If

traction on the tumor does not raise it high enough to allow the knife to pass through on the plane of the brim of the pelvis or a little below it posteriorly its point will be difficult to catch and guard by the hand placed behind the tumor. In such circumstances the section is best done from above downward. For this purpose a large scalpel is used. Rapid strokes of the knife quickly divide the tumor into two equal parts, the incision continuing downward in the median line of the uterus to the cervix. The bleeding is insignificant, amounting in fact to very little more than the discharge of residual blood.

Now with the tumor cut into two halves, the operator and assistant working at the same time on opposite sides, partially enucleate from below upward each section of the tumor from its

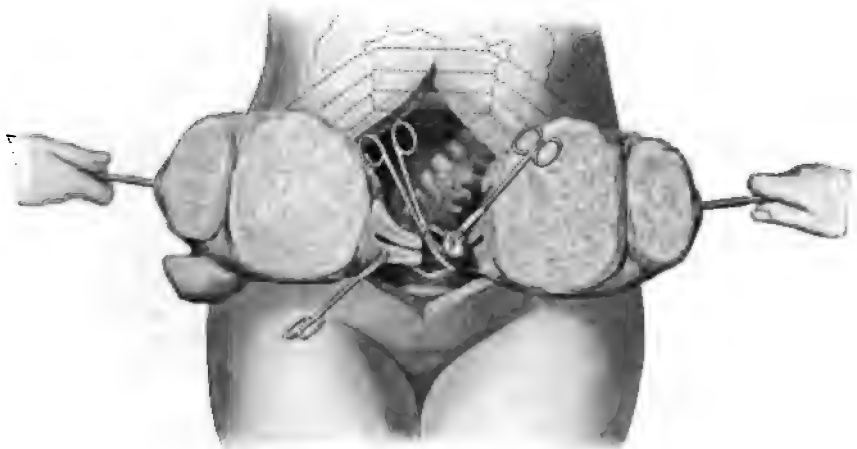


Fig. V. Procedure for complete hysterectomy.

capsule or bed in the uterus. The halves are rotated, in the process of enucleation, on their outer (upper) cut margins, the inner (lower) margin describing a semicircle in transit. At this stage of the operation the two halves of the tumor are lying on opposite sides of the patient's body, the flat cut surface looking downward and the convex enucleated surface looking upward. Both sections are connected by long pedicles to the uterine stump. It being understood that the original incision which bisected the uterus has been carried as far down as the cervical region, lateral cuts, after Kelly's method, sever the uterus proper from the stump and expose the uterine arteries which should be tied. The remaining portion of the pedicles now consists of parts of the broad ligaments only and having been compressed with the

angiotribe are tied with catgut, and the mass on either side cut away.

The edges of the cervical stump are then stitched together and the adjacent raw surfaces are covered by stitching over them the peritoneum of the bladder and Douglas' pouch.

If, however, in the place of supravaginal, pan hysterectomy is to be performed the bisecting incision is continued in the median

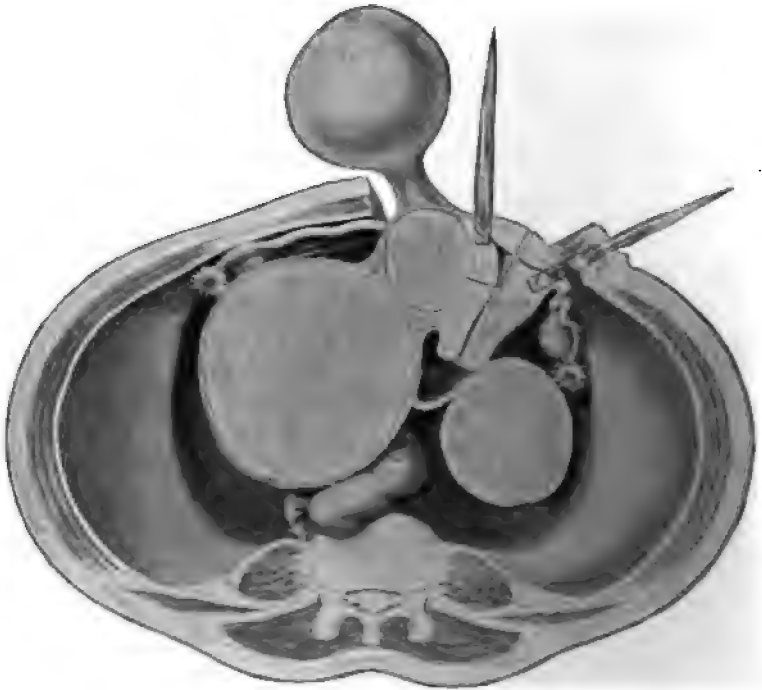


Fig. VI. First step. Incision of fundus and lateral wall of uterus to allow enucleation of interstitial or broad ligament tumors.

line through the cervix into the vagina, completely severing the uterus and tumor into two distinct parts. After the incision made by the knife reaches the cervix it is best continued with a pair of sharp pointed scissors. Immediately following the partial enucleation above described, one blade of the scissors is passed through the cervical canal and the point of the other blade pierces the vaginal wall behind the cervix; the posterior wall of the cervix is then split open, the incision extending a short distance down the vagina. The anterior wall of the cervix is opened in the same way with the finger in the vagina as a guide; one prong

of the scissors pierces the vagina between the cervix and bladder, the other enters the vagina through the incision last made.

Excision is completed by grasping the vaginal portion of the cervix on one side with a small pair of morcellation forceps, making firm traction and cutting from below upward, first severing the cervix from the vagina, then cutting close to the uterus, avoiding the ureters and uterine arteries. When about half of the broad ligament has been severed (the lower segment) one side of

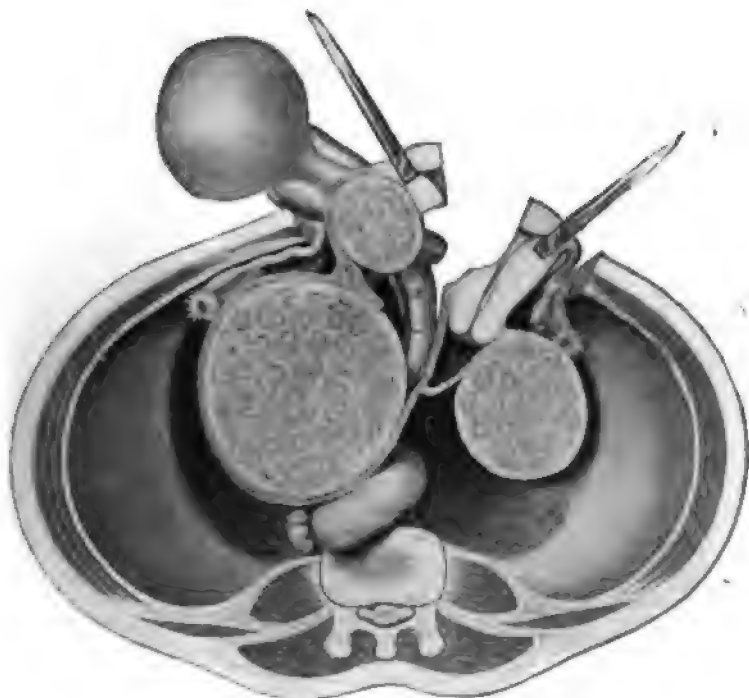


Fig. VII. Second step. Fundus incised. Fingers enucleating tumor.

the bisected uterus may be turned out of the abdomen. Similar treatment of the opposite side clears away all obstructions to manipulations in the abdomen and pelvis, greatly facilitating ligation of the uterine arteries held in the grasp of compression forceps. If the pedicles are thick they should be clamped external to the ovaries with the angiotribe and subsequently ligated in the track of the instrument. It will be observed that each half of the uterus is removed very much after the manner in which Doyen removes that organ in one piece. Bleeding from the vaginal wall may demand a few ligatures or stitches. When this has been

looked after, the peritoneum is stitched over the raw surfaces in the bottom of the pelvis and the remainder of the operation finished in the usual manner.

The advantages of combined bisection of the tumor and uterus with partial enucleation are: saving in time, decreased loss of blood, increased working space, easy manipulation and safety against injury to the ureters and uterine arteries. The advantage

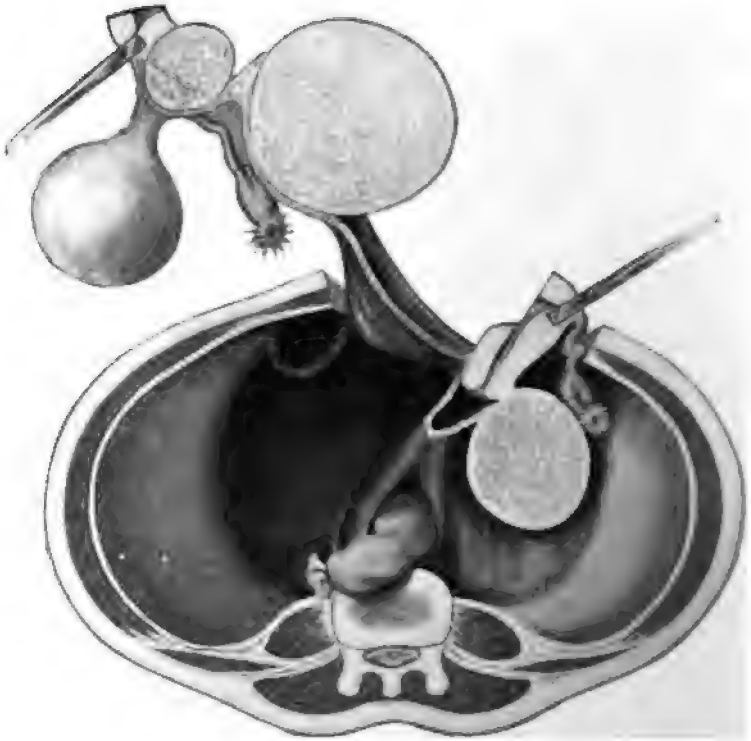


Fig. VIII. Third step. Tumor freed and turned out of abdomen.

of time saving is apparent to all, since prolonged operations contribute largely to shock. The hemorrhage consists of only a small amount of residual blood that remains in the veins and sinuses. It drops down in the bottom of the pelvis and can be removed by a few strokes of the sponge. No blood escapes during the process of enucleation, as the parts separated are either within the capsule of the tumor or within the external layer of muscular fibers of the body of the uterus. Oozing of blood is confined almost entirely to this layer of muscle and can be controlled ab-

solutely by traction on the forceps. As enucleation of the bisected tumor rapidly removes the bulky mass from the abdominal cavity increasing the working space and rendering subsequent manipulation easy, it is an advantage that any one who sees it must necessarily appreciate, for an unobstructed field of operation requires less skill and manipulation.

The feature of great importance is the fact that the ureters are not liable to injury even though they may be very much displaced by growing tumors. In the operation above described the manipulations are confined to the space between these two ducts. The incision is made in the median line; enucleation is done from the same point, and when the ureter passes over the upper part of the tumor and enucleation is done as above described, the tumor is rolled out from beneath it, permitting the ureter to drop to its normal position. In the old operation of ligating the broad ligament from the pelvic brim to the floor of the pelvis there is great danger of either tying the displaced ureters or severing it when cutting across the pedicle.

ENUCLEATION OF INTRALIGAMENTOUS AND POST PERITONEAL FIBROID TUMORS IN DEEP PELVIS.

Since the title of my paper has appeared on the programme of this meeting I have received from Dr. Pryor a reprint of a paper in which he anticipated me in the treatment of intraligamentous tumors or post peritoneal fibroids in the deep pelvis. As the principle is the same and we differ only in technique, and as the doctor's description is so clear, I will call attention to the method only, with a view of endorsing and illustrating the operation as I have been performing it, viz.: Intraligamentous tumors are partially enucleated by penetrating their capsules from the cavity of the uterus after bisecting the organ. They should be turned out with the fingers and morcellation forceps, then drawn up and rotated outward as above described. The portion of the tumor attached to its capsule everts the latter as it is drawn out of the abdominal incision and often to such a surprising extent that it may be included in the ligature placed around the upper border of the broad ligament. In this way the capsule in some cases may be entirely removed and in others parts only are cut away, and if included within the ligature of the pedicle, avoids the necessity of suturing the edges of the capsule.

This necessarily confines manipulation within the capsule of

the tumor, preventing injury of the ureters, blood vessels and oozing from small vessels which occasionally occurs, when the tumor with its capsule is removed from the loose connective tissue of the broad ligament. The latter is most apt to take place when the uterine arteries are encountered at unexpected points, on account of their unknown relations to the tumor.

In the discussion on this paper, DR. WILLIAM R. PRYOR, of New York City, referred to some of his previous work, which was embodied in a paper published by him in 1900. In dealing with the tumors under consideration, he spoke of studying the manner in which large fibroid tumors distorted the anatomy of the part and of the direction in which they revolved; also the great difficulties attending the removal of intraligamentous or retroperitoneal growths lying between the bladder and uterus on account of their marked fixity and asymmetry. These tumors, he said, could be enucleated by penetrating their capsules from the cavity of the uterus after bisecting the organ. The tumor having been enucleated, the capsule was sutured.

Those who were studying the subject of fibroid tumors of the uterus and how to deal with them would receive many valuable suggestions relative to the morcellation of these tumors, both from partial and total hysterectomy, by reading an article published many years ago by Pean's assistant.

DR. E. W. CUSHING, of Boston, asked the essayist as to the risk in opening the cavity of the uterus in cases of large fibroid tumors.

He also referred to what Dr. Pryor had said in reference to the work issued by Pean's assistant, and said that in Martin's book, which he translated in 1887, this method of bisecting fibroids was described. Any one who had seen Martin operate would realize that it was more convenient to remove these tumors by bisection.

DR. J. WESLEY BOVÉE, of Washington, D. C., mentioned two classes of cases in which these operations were not free from the danger of injuring the ureters. There were a large number of cases reported of fibroid tumors of the uterus through the tissue of which passed the ureter some distance from the cervix, not running around it, as was generally taught. In that class of tumors there was no way he knew of to get rid of the danger of injuring the ureter except tracing the ureter to the tumor. In this way one would know where it was located, and thereby prevent injury of it.

There was another class of tumors, the migratory fibroids in the broad ligament, in which splitting of the uterus did not materially assist in the operation. Furthermore, when the fibroids were markedly located on one side, crowding the body of the uterus to the other side, there was marked asymmetry. In such cases he could hardly conceive how splitting of the uterus would be of any great assistance in removing such tumors. He then mentioned a method of removing these tumors.

DR. I. S. STONE, of Washington, D. C., stated that a few years ago Dr. Kelly spoke of this method. He had tried the method very much as represented by the essayist in a case where the tumor, he thought, was a good one for this method. However, it was impossible to get the tumor out. He began by dividing it from above, and his experience with this operation caused him to think a good while before he attempted the next one. He rose more especially to commend the method and to call attention to the fact that Dr. Hall, of Cincinnati, had practiced a similar method in removing cysts of the broad ligament.

DR. NOBLE, in closing the discussion, stated, in reply to the question of Dr. Cushing regarding the risk in opening the cavity of the uterus, that he used to think there was a good deal of danger in that, but he had opened the uterus quite a number of times in cases of submucous fibroids, and had gotten the whole mass outside the abdomen, and in so doing he did not anticipate trouble from infection. He pointed out the importance of adopting this method as a routine measure in cases of large fibroids that were difficult to reach and which would fill up the abdomen. The routine measure of bisecting the tumor, turning it out, getting rid of the mass, put the operator in a position so as to reach the uterine arteries at the cervix.

THE RELATION AND CO-RELATION OF GYNECOLOGICAL AND NERVOUS AFFECTIONS.

BY

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THE relation and co-relation of gynecological and nervous diseases is a question which ought and does concern the members of this society. Every gynecologist, in his general survey of the whole body of the female, to determine the import of certain pelvic signs, must have noticed the frequency, and at times the severity, of symptoms of her nervous system. He may be puzzled to fix the special significance of these phenomena. Let us then for a while consider this subject.

That there is such a relationship goes almost without saying. The intimate history between the nervous system and other parts of the body in disease, is only in accordance with the general law of morbid action. The most varied phenomena, trifling apparently, yet serious at times, may result from the same pathological entity.

It seems to me that this relationship may be looked at in two ways:

1. What influences do female pelvic diseases have in the induction of nervous disorders?
2. What affections of the female pelvic organs arise from nervous derangements?

At the start it may be said that we rule out any thought of the occurrence of any organic, so-called structural, lesions of the nervous system, as resulting, unless indirectly and quite remotely, from pelvic diseases. The morbid changes then to which reference implies are: *hysteria*, *neurasthenia*, *neuralgia*, *chorea*, *epilepsy*, *catalepsy*, *hystero-epilepsy*, *certain paralyses*, *migraine*, *convulsions* of certain kind, including tetany; also mental aberrations, and vaso-motor changes.

Hysteria, a purely functional disease, without any definite recognized causative lesion, with no visible anatomical basis, is seen under a great variety of conditions and circumstances. Protean in its manifestations, not limited exclusively to the female, it is more common with her, because of the inherent susceptibility and the excitability of her nerve centers, and because of her special functions and social relations. Do we ever witness hysteria without any intra-pelvic disease? Every one of us can answer this question in the affirmative. Therefore, we are not to infer the presence of any pelvic disorder because of hysterical symptoms. If any is detected, it is incidental; no causative relationship. Remove the pelvic disease, the hysteria may continue. In more than one-half of the cases of hysteria, there is no defined disease of the sexual organs. But, we all must appreciate that any pelvic disease, if long continued, and attended with suffering, by weakening and depleting the general health, and by depressing the spirits, must increase its sensitiveness, diminish its resisting forces, and provoke hysteria in any female, who, for want of physical endowments, a defect in mental and moral discipline, is so predisposed. Reflex nervous disorders occur in those who have a tendency in that direction. In hysteria the reflexes are usually exaggerated.

Hysteria is not a well-rounded morbid unit. Hysteria does not mean a diseased womb. It has no connection with the uterus except in name. The brain is its habitat, and the nervous system its field of operation. As thought directed to any part of the body increases its vascularity, and augments its sensibility, so such patients are always given to introspection. Hysteria is largely a psychical disease, provoked by psychical causes, and

with good hygiene is cured by psychical means. Always in hysteria is there a lack of brain control. The type of a woman's brain furnishes its potentiality. Hysteria is more strictly a cerebral neurosis.

A non-development or a faulty conformation of the uterus, with a stenosed os, a conoid cervix and anteflexion, is usually noticed in women, with some imperfection of organization of the nervous system. Likewise there may be some imperfection of the tubes and the ovaries. If normal, however, there must be an unfortunate periodical activity of these organs, unrelieved by menstrual fluxes. The continual activity of each menstrual molimen, not alleviated by any physiological depletion, may culminate in one of these nervous perturbations, or, in the establishment of a vicious cycle at each catamenial epoch; in time to inter-menstrual discomforts, and finally in a nervous break-down.

While many hysterical women have no anomaly of the sexual organs, we must affirm that, a certain proportion of them, to a certain degree, do have some imperfection in the development of their sexual apparatus, especially the uterus. Hence the justifiability of an oöphorectomy in some such cases. Should the sexual organs be diseased in hysterical women, we cannot say that the hysteria is secondary. Even then psychical causes are at work, more potent than the local disease.

Errors in diet, in general hygiene, in lack of rest, and in various indulgences of the mind and body in girl-hood, lead to physical anomalies, and give rise to abnormal mobilities of her nervous system. The functions of ovulation and menstruation play then more than their ordinary rôle in the inauguration of nervous phenomena. Every intelligent physician understands how essential the judicious care of a well-instructed mother is, during the years of sexual evolution of every girl, and how often it is strikingly neglected. Want of due attention to her body, and a mis-direction of her mind, contribute to conditions of excitability, restlessness, morbid emotions, and despondency. There are then fostered a physical and mental state conducive to faulty developments, as well as certain functional disorders of her sexual system. An after life, a pregnancy, a parturition, and particularly a menopause, must pay the penalties of such training.

The etiology of many pelvic diseases depends more on individuality than on special causes. Inheritance is an equation personal, which cannot be overlooked. Every woman is the outcome and the product of her own ancestry. A defective strength, a feeble

tone of body, inadequate to maintain a normal equilibrium between the generation and the expenditure of energy, come from inheritance, a mis-directed schooling, a poor or neglected hygiene, misuse and mishaps. Impaired nutrition, presided over as is this function by the sympathetic system, is the under-lying factor of the functional pelvic alterations. One of the saddest chapters in the history of modern gynecology is the reflection that many women, who have undergone abdominal and vaginal operations, are still invalids, afflicted with the afore-mentioned nervous disorders, supposed to have been reflex of some intra-pelvic affections. How much these imperfect results are due to defective elimination and to auto-intoxication, are worth considering.

But, uterine and ovarian diseases do cause nervous disorders, the rectification of which cures the reflex disturbances. We all appreciate how numerous and pronounced at times are the reflex neuroses of a cervical laceration. Here is a mother, who has had a constant pain over her sacrum, in her left intercostal region, a stubborn headache, with, it may be, visual disturbances, and withal is hysterical at times, and always more or less neurasthenic. Now all of these reflexes are in times, many of them very promptly, effaced, by a judicious and skilful repair of the old tear, with, of course, always the thorough exsection, deep as it may be, of all of the offending cicatricial tissue at the bottom of the rent. No pelvic surgery is more eminently satisfactory, not only in the relief of all local symptoms, but in the abatement of various neuroses, unmistakable and otherwise intractable. *Its* preventive power over woman's greatest enemy—cancer of the womb, we must ever bear in mind.

A personal experience, by no means exceptional, in the manifestations of convulsions: hysteroid, epileptic, hystero-epileptic, and tetanoid, may be mentioned as neuroses, at times distinctly reflex, of intra-pelvic diseases.

Chorea is at times a severe reflex of pregnancy, not to be abated until the uterus is emptied. We see it too in growing girls, incident to pubertic changes. Strange and misleading reflexes come from loss of control over the insubordinate lower nerve centers.

All of these reflexes are usually found in the nervous diathesis, and are more noticeable at the menstrual epoch; they may be confined thereto. We are not to infer, however, that such reflexes are pelvic in origin, because so limited in time; all women are then more sensitive and susceptible. Epilepsy is at times spontaneously

arrested at the inception of the menstrual function; also insanity, which may have begun in earlier life.

A limited amount of minor gynecological treatments are often essential, preceding or following surgical operations; the same may be all that is required in other cases; but if such manipulations are too frequent or too long continued, they do harm, in highly sensitive and emotional natures. The same remarks apply to the much abused use of vaginal injections.

Probably, the ovaries are more frequently the *fons et origo morbi*. We never can forget an instance of most marked hystero-epileptic attacks, manifested several times a day, seemingly from a chronic oöphoritis, which seizures, a section, with a removal of a small ovarian abscess, at once and permanently controlled. Nor, ought we fail to recall a case of tetany, which showed itself in the last stages of a disintegrating fibroid of the uterus.

How useful is a section, with the extirpation of the ovary, when markedly degenerated, cirrhotic, or seriously misplaced. Uterine displacements seldom are, but ovarian prolapse is, a more fruitful source of hysteria and neurasthenia. The abatement of the nervous disorders shows an association clear and well defined. But some relationships, although seeming, are not always so certain, for independent affections of the nerve centers and the spinal column, anemic states, irritations in other and distant parts of the body, we may observe, when the sexual apparatus is intact. No more difficult or intricate problem have we at times to solve. Is the genital disorder the more important (the only etiological factor); or, are other causes operative? There may be no relationship, both conditions being the result of a bad inheritance, a poor education, a faulty hygiene, some unhappy association, or some intercurrent disease.

The potent influence the general health, especially the tone of the nervous system, has, in inducing and intensifying local and general manifestations of certain lesions, is well illustrated in studying the etiology and symptomatology of numerous female pelvic diseases. Let a woman become the victim of some unusual strain, physical or mental, then some insignificant disease of her pelvic organs becomes a factor in the perpetuation of a nervous breakdown. With a restoration of, or a good, nervous system, she ceases, or does not notice, the ill effects of a torn cervix, a retroverted uterus, or a cystic ovary. It is not a cervical erosion, which hurts the nervous system, so much as it is the nervous disorder which draws attention to the diseased cervix. A diseased womb

always aggravates a hysteria, a neurasthenia. Nervous women feel pain more acutely, for they resist it very poorly. Let a female be told her womb is out of place, she never forgets it; often refers to it. It makes a mental impression, strong, lasting. It is like telling her she has a movable kidney. Suggestion always plays an important rôle in women, more particularly if she has her attention drawn to her genital system, or if she is neurotic. The ancient error of making the sexual organs responsible for hysteria has had for its outcome their extirpation. *Charcot* has condemned such operations as unscientific. The appeals made to alienists, surgeons and gynecologists, in Europe and America, have illustrated this fact of many so operated on: A few were benefited, because at times real diseases of the removed organs were taken away, and because, in other instances (the favorable results following), simulating operations were done. Do we ever have a better illustration of the power played by suggestion in its therapeutic rôle? It seems to me we all can endorse the following cardinal principle of conduct in such cases, viz.: Remove her diseased appendages, if they are the source of local and general disturbances, uninfluenced by simpler methods. But it seems to me that greater discretion and more patient care might save many female pelvic organs.

I refer to these facts to show how careful, how tactful we ought to be, in informing our patients what is the underlying morbid entity. We can talk some sick, make them think almost every thing about their pelvic organs.

Horatio R. Storer has been a most earnest advocate of the dependence of insanity in women on pelvic disease. That this is at times true cannot be denied, but a careful inquiry of the Superintendents of Insane Asylums meets with the almost constant reply that, the number of such cases is few; other causes being conspicuous. The sexual organs play a small part in the production of mental disorders. The menstrual functions are then often not deranged. But 25 per cent. of insane women have any gynecological disease. No amount of pelvic or general physical disease can cause a psychosis, unless conditions favorable thereto are to be detected in the brain or in the nervous system. All forms of insanity have nervous exhaustion and depression, with some irritation, as inseparable factors. Their presence indicates a lowered vitality, a nervous strain, or a toxemia, which the nervous system is unable to withstand. Mental aberrations are more frequently functional or reflex in women than in men; hence more

frequently recovered from. A mental depression is often noticed in healthy women, at the menstrual epoch; therefore, most cases of insanity, reflex or otherwise, are worse at the catamenial periods. Insanity and female pelvic diseases do at times have a well-defined relation of cause and effect; these relationships are rare.

Insanity has been promptly relieved by gynecological operations; and it has immediately followed them. Such sequelæ then noticed are probably more common than after other operations.

Several factors are generally at work in individual cases: as some peculiar condition of the nervous system, inherited or acquired, as well as the attending shock, and the anesthetic; these are more to blame than the gynecological operation itself. These reasons must be apparent, when we recognize the long-continued and general impairment of health—the preceding illness. The surgical shock was simply the straw to snap the mental sanity.

No surgical procedure is to be considered for insane women, unless warranted on the sane. None should be neglected in cases of insanity, whether for causative lesions or not, if bodily comfort of and diminished care for such are reasonably assured. An exact understanding of all pelvic conditions of insane women should be obtained early in their management, and in the presence of one or more witnesses.

Migraine, a nervous disease, accompanied by vaso-motor changes, is most common in females, and is so often associated with the function or cessation of menstruation, as to give rise to the presumption that it originates exclusively from this source. Genital diseases, functional and organic, aggravate these nerve storms.

"The climacteric is an inverted puberty." The process of involution, like the train of evolution, is attended with stress and difficulty; hence nerve perturbations at these periods of life.

There is no disease, which has a more intimate relation to the body at large and the general health of women than dysmenorrhea. Functional disorder though it is, when long continued and severe, it makes more invalids than any other pelvic disease.

Pain is always a relative thing to individuals, but oft repeated in attacks over many years, leads to hysteria, neurasthenia, and complete invalidism. Dysmenorrhea is most intense in some young women, who show no other symptom of a neurasthenia. To the nervous system in general of such sufferers can we ascribe the degree and the kind of pain.

Authorities speak of psychical amenorrhea. I have often thought, and now firmly believe that, there is a psychical dysmenorrhea, for some of these cases seemingly do not suffer any pelvic pain, until they mentally are cognizant of the physical presence of the flow; or, in other words, would not complain, if they were kept in ignorance of its presence.

The enormous influence of the mind over the body is shown in some of the functional disorders of the bladder. Polyuria, like the frequency of micturition, is often absent, if the mind is engaged or otherwise diverted.

To my mind, it is unreasonable to affirm that there is no such thing as the neuralgic form of dysmenorrhea—the spasmodic of some authors. A neurotic diathesis, a city life, sedentary habits, and undue development of the brain over the body, make an increased sensitiveness, an inordinate reflex excitability, a relative sensibility to menstruation, purely constitutional in its nature, without, it may be, a single sign of structural lesion of the endometrium. This painful menstruation is but a local expression of a general neurosis.

In the treatment of women for the special diseases of her sex, there is too much of a tendency to place undue stress on real or supposed lesions of her reproductive organs. This is particularly true in reference to some so-called ovarian affections. Gynecology of to-day would not amount to much without an appropriate surgery, but indiscreet surgery like over-medication may be an abuse. Every theory in medicine must be the outgrowth of an extended experience. "Knowledge comes, but wisdom lingers."

DR. WALTER P. MANTON, of Detroit, Michigan, said that this was a subject in which he had been interested for a number of years. The subject was too large to go into a detailed discussion. Three or four years ago the speaker published a paper in which he gave the results of his examinations of a number of insane women in reference to the frequency of pelvic disease, and he found that local pathological conditions of the pelvis were frequent in that class of cases.

He reiterated, as he had frequently done in his experience, that he had never seen a case of insanity which could be traced directly to any pelvic or abdominal lesion. Occasionally one saw cases of post-operative insanity. He went through the asylum records, and of a large number of cases he found but two on record in which the mental condition was due to operative intervention.

He excluded puerperal cases of insanity in referring to such disorders.

Fifteen years ago, when he began his work in this line, and he had had a large experience in dealing with this class of cases, he thought possibly by the removal of the tubes and ovaries the mental condition of the patient had been aggravated by the pelvic disease, and it was thought the removal of these organs would relieve the mental condition. This, however, was soon abandoned after operating two or three times, and at present operations were done only for the relief of pathological conditions. He had never seen a case of insanity cured by operative measures, although one or two cases had been reported from the asylums where relief followed operations. In every instance in which an insane woman was suffering from pelvic or abdominal disease, there was always improvement both in the mental and general condition of the patient following the removal of the local irritation.

DR. PHILANDER A. HARRIS, of Paterson, N. J., said he could not recall but one instance in which there was evidence of insanity or of delusions becoming specially fixed and appearing in the life of the individual at one particular time, and as the result of one condition. A young married woman, who was of a cheerful disposition, upon becoming pregnant, became taciturn and in bad humor when spoken to. She did not enter into her ordinary household duties, because she had lost interest in them. She went through her first pregnancy with a great deal of trouble to her husband and friends. At one time she had suicidal mania, but after the birth of her first child, so far as any one could discover, she returned to her cheerful disposition. In about two years she again became pregnant, but in the interval between the pregnancies there was nothing observed either by her husband or friends which would indicate that she was mentally unbalanced. At the second pregnancy she again became taciturn and morose, and her physician, after learning the history of the case, produced an abortion, and terminated pregnancy, shortly after which she returned to her usual cheerful disposition. Later her physician excised the proximal ends of the tubes to prevent subsequent pregnancy. This case strikingly illustrated that there was nothing wrong with the mentality of the patient prior to her first pregnancy.

DR. J. DUNCAN EMMET, of New York City, said he had had no personal experience with insanity in its relation to pelvic pathological conditions, but he had seen a great many cases of hysteria associated with laceration of the cervix, and of other injuries connected with the genital organs. When hysteria was habitual, when it became a chronic habit, it generally had for its basis a lesion of some portion of the genital apparatus. Its connection with lacerations of the cervix had been clearly shown, in that it would disappear after the lacerations were repaired. He had seen so many such cases, in which the hysteria disappeared after the repair of laceration, that he thought the experience of the essayist was at variance with the greater number of gynecologists who had done

much plastic work. Only a day or two ago he had operated on a young woman, who, about six months after her first child had been born, was suddenly seized with an almost irresistible desire to injure her child, or to murder it, and this feeling was repeated again and again for nearly a year. The woman was very intelligent, and was subject to frequent spells of general mental depression. She had no idea that there was anything the matter with her genital organs except in a general way. She had no idea that she had a laceration of the cervix. He amputated the cervix a day or two ago, and was perfectly convinced that she would be entirely relieved of those symptoms in the course, possibly, of six months.

DR. WILLIS E. FORD, of Utica, N. Y., said that physicians ought to distinguish between the fact that neurasthenia was not produced by any particular local lesion, and that it was more common in women than in men. It was not produced by any particular disease, and the actions of life brought forward any weaknesses of the nervous system which were inherent in the man or woman. He said there were no cases that were so intractable to all methods of treatment as sexual neurasthenics. It was a mistake to believe that neurasthenia was produced by a slight pelvic lesion. He presented to the Society years ago a series of seventy-five selected cases of trachelorrhaphy, the operation having been done for the relief of nervous symptoms, without any marked ultimate results except what might be attributed to an improvement in the general health. He thought the same held true to-day. According to his own observations, relaxation of the vaginal outlet produced infinitely more nervous disturbances than any condition about the cervix. The cervix might be torn or the uterus displaced, and if the woman was in good health, it would not be noticed; but relaxation of the perineum, with enteroptosis of the organs above produced an amount of disturbance entirely out of proportion to a similar lesion in the uterus.

DR. EUGENE C. GEHRUNG, of St. Louis, Mo., said that his experience contradicted some of the opinions expressed, that minor gynecological disturbances did not infrequently cause different degrees of insanity. He recalled many cases of melancholia and hysteria, so designated by experts of insane asylums, which he had relieved and cured by simply applying pessaries. In some instances he thought severe cases of amenorrhea and dysmenorrhea might be the cause of insanity. A more frequent cause, perhaps, was metrorrhagia or menorrhagia, especially if of long duration.

DR. ARTHUR W. JOHNSTONE, of Cincinnati, Ohio, said he thought the profession was entirely off as to what really caused neurasthenia. He recalled the case of a young man who, for a considerable time, was neurasthenic and went about on crutches. His condition was found to be due to a stricture of the urethra. Behind the stricture was an ulcer, and from this ulcer he was getting constant absorption of ptomaines. After restoring the caliber of the urethra and treating the ulcer, the young man was cured. He threw away his crutches.

DR. GEORGE TUCKER HARRISON, of New York City, said that this was the most important subject that could possibly be brought to the attention of the members of the Society. All those who had come in contact with neurologists, and had discussed the relation of the genital organs to nervous affections, must have been convinced that the neurologist had not thrown the slightest light upon the subject, and if any of the members had ever received any assistance from neurologists, he thought they were more fortunate than he had been.

The relation of gynecic disease to insanity was interesting. He had seen a number of cases of insanity in women, but in only a few of them could he directly attribute the insanity to a gynecic affection. Like Dr. Gehrung, after a profuse hemorrhage he had seen symptoms of mental derangement in persons in whom there was a latent predisposition to insanity, which were called into activity by the disease, but what particularly interested him was the relation of post-operative insanity to gynecic disease. He recalled a case of Cesarean section in which he assisted Dr. Grandin. The operation was done skilfully; there was no sepsis, but the patient died from insanity after the operation.

DR. PALMER, in closing the discussion, expressed his gratification that his paper had elicited so much discussion. Not enough attention was devoted to this subject in everyday work. As to reflex disturbances from hysteria, there was no disease inside of the pelvis of a woman which, in its primary and secondary effects, produced the amount of reflex disturbance that a lacerated cervix did. The profession was therefore indebted to Dr. Emmet for referring to these reflex disturbances and effecting their cure by proper repair of the laceration.

DR. HIRAM N. VINEBERG, of New York City, contributed a paper on

THE ETIOLOGY, PATHOLOGY AND TREATMENT OF PUERPERAL SEPSIS.¹

DR. WILLIAM R. PRYOR, of New York City, took issue with the essayist as to the significance of certain pathogenic germs. Very rarely in mild cases of puerperal sepsis was the streptococcus found present, whereas in the severe cases streptococci were present. In the mild cases other kinds of germs were found, chiefly staphylococci and saprophytic bacteria. He had learned from experience that the streptococcic form of puerperal sepsis was the one that demanded careful attention, as upon the number of streptococci found would depend very largely the character of the sepsis. Epidemics of puerperal sepsis varied materially. In one epidemic the mortality would range from two to three or possibly five per cent; in another there would be a mortality of 27 per cent.

As to the use of the curette, it should not be considered lightly.

¹ To appear later.

In a case of local infection, to inflict trauma over the whole inside of the uterus by means of the curette usually meant the dissemination of the infection, and he believed it was bad practice to adopt.

He condemned hysterectomy unqualifiedly in patients suffering from septicemia, saying that nothing could be gained by the removal of the uterus.

DR. EDWIN B. CRAGIN, of New York City, said he had been working at the problem of puerperal sepsis from a little different standpoint to that of Dr. Pryor, inasmuch as he had the responsibility of the Sloane Maternity Hospital, and at the same time having the conduct of the use of the Laboratory of the College of Physicians and Surgeons. Having fourteen hundred cases at the Sloane Maternity a year, he was brought in touch with obstetrics from the practical side, but he was free to admit that occasionally there was a case of infection, because cases were admitted undelivered, no matter whether they had been handled by midwives or by beginners. They were admitted whether they were just in labor, or whether they had been in labor for several days. Furthermore, occasionally a case or two had been lost from infection, although both pathologist and bacteriologist had been unable to find streptococci. In a number of severe cases of puerperal sepsis, there had been varieties of bacteria found in the uterus, but usually the most severe cases showed the streptococcus.

Coming to the practical management of infection in the wards of a maternity hospital, if he had learned anything from his experience, he desired to put forward two things above everything else. *First*, to make sure the uterus was empty. *Second*, in making sure that the uterus was empty, to do just as little damage to the inside of the organ as possible. This brought up the question of curettage, and he was in the habit at the Sloane Maternity of dividing curettage into two parts. *First*, manual curettage, and, *second*, instrumental curettage, always desiring the manual where this was possible. But, first of all, one should make sure that the uterus was emptied with the hand or finger, if the temperature did not decline to normal or practically so after the intrauterine douche. If one could not remove the débris from the uterus with the finger, the curette should be used merely as a substitute for it. He preferred a blunt curette, but one that was stiff, remembering always that its use was to be undertaken with the least possible abrasion to the inside of the uterus. In using the curette, care should be taken not to open up new avenues and thus cause a general infection. Patients who were suffering from toxemia, or from what was sometimes called sapremia, were in a condition favorable for the commencement of septicemia if unrelieved.

In regard to hysterectomy, or a severe abdominal operation, he believed this operation was seldom indicated in maternity hospitals. Cases of pus tubes and abscesses in the uterus should be operated upon.

DR. J. WHITRIDGE WILLIAMS, of Baltimore, Maryland, stated that his views concerning puerperal sepsis were pretty well known

to the members, and he had very little to add to what he had said in the past. He noticed that the essayist had stated in the abstract of his paper that had been read that a bacteriological examination was of very little value. He took a decided stand against that, because the more he had seen of puerperal infection, the more valuable he considered the results of a bacteriological examination of the uterine lochia and of the blood as well. Of course, in many cases there was no definite indication for treatment from such a bacteriological examination, yet there was absolutely no doubt in his mind that important information as to the condition of the patient was revealed. It was always a great comfort to him, when he saw a woman with a high temperature and rapid pulse following labor, to know whether the uterus contained bacteria and what sort of bacteria. If he found there were streptococci present, and the condition was serious, he was very much alarmed about it. If the gonococcus was present, he did not bother very much about it. If the colon bacillus was present, he bothered very little about it, and if the ordinary putrefactive organisms were found, he did not bother at all about the case. So far as the treatment was concerned, we did not get valuable information from the bacteriological examination, because he treated all his cases practically alike, but from a prognostic standpoint one could not overestimate the value of it. At the same time, it was not an absolute method, as sometimes it led the profession astray. He saw a woman on Sunday who had a severe infection. He took cultures of the uterus, and found they were sterile, and exactly what the condition was he did not know. In that case a bacteriological examination was of no value, but in spite of a few exceptions of that kind, these examinations did much good, and had saved him a large amount of worry. We were not able to tell the course of the disease by knowing the form of bacillus present; we had no means of telling the virulence of the organism.

The examination of the blood was a matter about which he could not say so much. When bacteria were found circulating in the blood, the woman was in a serious condition, but the finding of streptococci circulating in the blood was not necessarily of great prognostic significance, because a large number of women in this condition recovered.

Coming to the treatment, which was the most important feature, he had several times expressed his ideas as to curettage. If a woman had streptococcic infection, the curette was harmful, and he believed the bad results of many practitioners were due altogether to the practice of curetting such cases. Whenever he saw a woman with streptococcus infection, he did not think of using the curette, but simply gave her a single douche of sterile salt solution and left her alone. On the other hand, if he found the uterus with necrotic material in it, particularly if the infection was due to putrefactive organisms, he cleaned out the uterus with his finger. Even then he did not curette. From his point of view, the

curette had altogether disappeared, and the only time it was used by him was after cases of abortion.

Passing on to the operative treatment, he thought it was extremely limited in cases of puerperal sepsis. In those cases in which there was pus formation or pyosalpinx, or a similar condition following abortion or labor, operation as such was indicated as under other circumstances. Likewise, in the rare cases in which there was abscess formation in the uterine wall, hysterectomy was indicated. But, leaving out this class of cases, he believed operative intervention was very limited. He had seen but two cases in which he felt operation was distinctly called for. One of these was a woman who had a retained adherent placenta, which the attendant made attempts to remove, but absolutely failed. The woman was profoundly infected. The placenta and uterine wall were, to all intents and purposes, a single structure.

The other case which he saw, and which demanded operation, was a woman with a thrombosed vessel as large as one's thumb coming off from the right side of the uterus. He operated, and removed the thrombosed vessel, the woman making a recovery. This had been his entire experience with operations under these circumstances, and he believed that obstetricians should be extremely conservative in the matter.

He could not endorse the views which Tuffier advanced at the Congress, namely, that if one could not do anything else he should operate, because he believed indiscriminate operating would kill more women than would be saved, and obstetricians should be extremely cautious as regards the indications, and reserve operative procedures for the few cases in which they were distinctly indicated.

DR. MATTHEW D. MANN, of Buffalo, N. Y., said there was one germ which sometimes attacked the puerperal woman which had not been mentioned, and this was the gonococcus. Cases of gonococcus infection generally showed themselves rather late, that is, the symptoms came on as late as the tenth day, or after that. Usually they were not very severe. Recently he saw a case of sufficient interest to put on record. The patient, at the time he saw her, had been sick for more than a week. Her temperature had been ranging from 107° to 108° for a number of days before he was called in consultation. Strange to say, her pulse was not very rapid, it being 120. Examination of the discharges, by competent bacteriologists, showed a pure culture of the gonococcus. No other germ was present in any of the secretions. He thought possibly that the infection would localize itself and the woman would recover, but as the joints were affected, and the heart involved, the patient eventually died, her temperature just before death reaching 111° . Such cases were rare. It was the only one he had ever seen, although he had seen cases of gonorrheal infection following labor that had localized themselves in the tubes, and had recovered.

As to streptococcus infection and its treatment, he narrated the case of a patient who had had a marked streptococcus infection.

Cultures were made, and the streptococcus found to be present. The cervix and perineum were covered with a diphtheritic membrane, the latter being torn and the patient's condition serious. He painted the cervix with a strong tincture of iodine, packed around it with iodoform gauze, made no currettement, and it did not open the cul de sac, as he had done in other cases, with great satisfaction, but depended largely in this case on the silver salts or Crèdè ointment. The patient was simply covered with Crèdè ointment, rubbed in every few hours by the nurse, and finally he injected Crèdè salts into the vein. Under this treatment the patient improved, and eventually recovered.

If one desired to get good results in such cases by the use of the silver salts, it was necessary to push them to the utmost limit, and even injecting them into the vein.

DR. G. GILL WYLIE, of New York city, stated that his experience with puerperal infection dated back twenty years. At that time very little was known in regard to the surgical treatment of these cases, and most of them were so invariably fatal that it was expected eight out of ten cases that came to the hospital with this condition would die, and physicians were ready to sign death certificates. There was no question in his mind but what surgical intervention in these cases had revolutionized the whole thing, so that of his first nine cases treated in Bellevue of puerperal fever, seven were cured by local treatment. He believed a great deal could be done in the worst forms of the disease. There were surgical points regarding the treatment which were not well understood, and not thoroughly carried out. The uterus ought to be emptied in almost every case where the infection was due to the streptococcus. His experience in the past had been that very few of these cases were lost if thoroughly treated. After emptying the uterus, something else should be done, as the use of ordinary saline solution for the purpose of washing away the effete material on which the germs fed. Drainage was a very essential feature in these cases if there was material left in the uterus. If the uterus was not emptied of the material that accumulated in it, it became a splendid bed for the development of bacteria.

As to operation, he was satisfied that an expert, if he saw the cases early enough, even in the worst forms of puerperal infection, where the Fallopian tubes were involved by abscess formation, could save most of them by vaginal hysterectomy and drainage.

DR. EDWARD P. DAVIS, of Philadelphia, Pa., referred to the value of a bacteriological examination.

As regards the treatment of puerperal sepsis, the general surgical proposition held good, namely, that pus should be evacuated wherever it formed, hence incision of the posterior cul de sac in pelvic abscess, followed by the use of gauze packing, or without it, was indicated. Hysterectomy had practically nothing definite to support it, except in rare cases of adherent placenta, which were a curiosity in literature. A method, which was attended with excellent results, where irrigation had failed, consisted in opening the

abdomen, inspecting the uterus, tubes and ovaries, freeing adhesions, and if any collection of pus was found in the tubes, draining by iodoform gauze carried through into the vagina, and separating the organs from abnormal adhesions. The administration of normal salt solution was admittedly of great value, whether used by intravenous transfusion or in the form of rectal enemata, or by hypodermoclysis.

He said he could not do better than to repeat the statement of Leopold, that the surgical treatment of puerperal sepsis at present should be conducted on the one principle of evacuation of pus or the drainage of abscess, and that hysterectomy was only indicated in those extraordinary cases where the adherent placenta could be removed by no other method.

DR. MALCOLM MCLEAN, of New York city, said, in discussing such a paper as that under consideration, one should bear in mind what was the usual practice in consultation cases. In his experience he had found that the curette had become a uniform method of treatment in the hands of the average obstetrician, and even the sharp curette was used in many cases, the consequence being that the mortality had been increased enormously in septic cases. The curette was a dangerous instrument in the average hands. It was dangerous in almost anyone's hands; therefore it should be put aside. Emptying the uterus was an absolute necessity, especially where there was evidence of putrid absorption, attended with chill and high temperature. This was an almost absolute indication that there was detritus remaining in the uterus, which was the starting process. The endometrium should be left alone as much as possible. The intrauterine irrigation tube had its place in washing out the detritus from the uterus, but he questioned the propriety or safety of repeating these washings frequently. Personally, he did not repeat them. The general use of the intrauterine tube for washing out the uterus was a dangerous method of treatment. He strongly recommended the use of iodine in these cases.

DR. HENRY D. FRY, of Washington, D. C., stated that at a meeting of the Society, held in 1888, at which puerperal sepsis was discussed, reference was made to infection due to the streptococcus. He regretted not having heard the paper this morning, but judging from the abstract of it the author recommended the use of the curette irrespective of the germs producing the infection. The practice at the Columbian Hospital, where they had a large number of maternity cases, in the beginning of sepsis, where the infection was apparently confined to the uterine cavity, was to thoroughly cleanse the uterus, and after having taken a culture, active treatment of the uterus was suspended until the result of the culture was known. If there were retained pieces of placenta or blood clot, accompanied with a foul odor, and producing infection, the indication for cleaning out the uterus was clear. But if, on the contrary, the culture showed the presence of streptococcus, staphylococcus, colon bacillus, gonococcus, or any of these infective

agents, the uterus was let alone, and particularly in cases of streptococcal infection, he believed the use of the curette did a great deal of harm. If the streptococci infected the musculature of the uterus one could not possibly reach the infected area with the curette, and in the majority of cases of streptococcus infection the area was localized. It was not general. Nature was attempting to protect the patient by throwing out a protective zone of inflammatory tissue in which there were a number of leucocytes, and the streptococci were kept out. If the curette was used, this protective zone was broken down, so that the streptococci were enabled to gain entrance to the system, and cause a general systemic infection.

In cases of criminal abortion, he had seen repeatedly cases with septic conditions doing fairly well, yet after the curette was used some of the patients died in a few days. He pointed out the importance of making a distinction between puerperal sepsis, according to the agent producing the infection, and recommended making culture tests, then allowing the treatment to be guided or governed largely by that result.

DR. ROBERT A. MURRAY, of New York city, said there was a medium ground to take with reference to the use of the curette and also irrigation in the treatment of puerperal sepsis. If any of the members of the Society were to see a case of puerperal sepsis, he questioned whether the first impulse would not be to first find out what was in the uterus, and if there was débris in it, to detach it with the finger, if possible, or the curette. A good deal depended on the nature of the infection. When one treated a case of gonorrheal infection, he did not simply give one injection and leave the patient alone, as no one would be successful in treating that infection in such a manner. When there was an infection of the uterus, the uterine cavity should be washed clean and kept so, and in certain cases it was very essential to resort to free irrigation. He had seen a number of cases of infection from laceration of the vagina following the application of forceps, yet after thorough disinfection and cleaning of the uterus, the patients got along comparatively well, but those that were desperately sick had to be nourished and strengthened, but these patients had a chance to recover without surgical intervention.

DR. HERMAN J. BOLDT, of New York city, stated that experience had taught him that a bacteriological examination of the secretions of the vagina or uterus, or a bacteriological examination of the blood, gave no definite indication whatever, because the patients usually had a mixed infection, streptococci and staphylococci being found in the secretions of the uterus. These cases manifested mild symptoms, so that surgical intervention was not indicated. In all patients that had come under his care, both examinations of the secretions and of the blood had been invariably made. In some of the patients who showed bacteria in the blood he found pure streptococcus infection, pure staphylococcus infection, and because of the general condition of the patient, which did not indicate the necessity of surgical intervention, they were left alone and recov-

ered. On the other hand, very many patients showed nothing in the blood, yet death ensued, so that, as the result of the accumulated experiences, a bacteriological examination of such cases did not give a clue as to the indications for treatment.

So far as hysterectomy was concerned, he did not believe it was of any avail in the severe cases of puerperal septicemia, particularly the *foudroyant* forms, where the patient died within a few days.

DR. SETH C. GORDON, of Portland, Maine, believed that surgical treatment in cases of puerperal sepsis was undertaken too early. If there was abscess or pus in the Fallopian tubes, he believed these abscesses ought not to be opened, until one was quite certain that he could make a straight incision from the vaginal vault into the abscess cavity, without having any doubt as to whether the pus was united to the top of the vaginal wall. Every time an abrasion was made in the uterus with the curette or knife, in the vagina or anywhere else, unless the operator went straight to the point of infection, he opened up a new avenue of infection, thus doing a great deal of harm. He had seen quite a number of cases of puerperal sepsis in consultation, and usually the attending physician was under the impression that some surgical work was necessary. The attendant usually concluded to do a vaginal hysterectomy, to open the vagina and remove a pus tube, to curette the uterus, or to do some other operation. This was all right in pus cases, when one was reasonably sure that he could make a direct opening into the pus tube itself and not open up a new point of infection by so doing. He thought the use of the curette ought to be almost out of date. He believed in washing out the uterus with saline solution, and repeating it. He did not think once was enough. One of the most efficient remedies in this class of cases was large doses of quinine, frequently repeated. He believed it was one of the most valuable agents we had in this class of cases. He had seen two or three cases reinfected at new points simply because an effort was made to reach a pus tube which was not ready to be opened. In his opinion surgical intervention was to be carefully guarded and was to be undertaken rather late in the case.

DR. H. G. WETHERILL, of Denver, Colorado, by invitation, said it was necessary to make a distinction in the classification between infection which occurred after an abortion and infection which took place after labor at term. In one instance the uterus contained considerable detritus, which must, of necessity, be removed. In the other case the use of the curette was not necessary.

The discussion of the subject was not complete without an allusion to a method of treatment which had been presented to the profession for several years, but which had not been generally adopted. He alluded to the alcohol method of irrigation, or the Carosso method, which was brought to the attention of the profession by Dr. Edward J. Ill, of Newark, N. J., seven or eight years ago. The alcohol method of Carosso depended on one or two

things. It depended upon the localization of the original point of infection, in the first place, and, in the second, its success depended upon drainage, and in speaking of drainage the author did not mean drainage by gauze, but drainage with a tube.

REPETITION OF CÆSAREAN SECTION ON THE SAME PATIENT: THE EXPERIENCE OF THE BOSTON LYING-IN HOSPITAL.

BY

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EIGHT or nine years ago, a patient entering the Boston Lying-in Hospital for an elective Cæsarean section made the request that in the performance of the operation, steps be taken to make it impossible for her to become pregnant again and again to be subjected to the risks of delivery by abdominal section. Time permitting, this request was given careful consideration, with the result that it was officially decided that, while the judgment of the surgeon should be left free to deal with pathological conditions, the policy of the Hospital should be never to remove healthy organs with the object of preventing subsequent pregnancy. Under this policy the experience of the Hospital has been as follows:—

Of fifty Cæsarean sections in the last nine years, nine have been repeated operations, performed on eight patients; that is, second sections have been done on eight women, and in one case section has been repeated twice.

I.—M. McH., Irish, first labor in out-patient department of the Boston Lying-in Hospital in 1897; high forceps, child still-born: advised to have Cæsarean section in event of second pregnancy. Entered Hospital in second labor at term, July, 1898; pelvis, justo minor, c. v. 8.5 cm. Section by Dr. Reynolds after patient had been in labor three hours: weight of child, 8 pounds. Convalescence normal: mother and child discharged well.

Re-entered Hospital, March, 1901, at term, but not in labor. Section by Dr. Green after patient had been in labor 9 hours: incision through scar; some adhesions between uterus and abdominal wall were separated and the uterus lifted from abdominal

cavity. Time of operation 48 minutes. Weight of child $8\frac{3}{4}$ lbs. Mother died in 36 hours, apparently of shock. Baby discharged well.

2. M. R., Irish.

First labor, 1892, forceps, child lived only 15 minutes.

Second labor, 1893, forceps, child died in 10 minutes.

Third labor, 1896, prolapsed funis, child stillborn. These three labors not in charge of the B. L. H.

Entered B. L. H., 1897, in labor. Pelvis justo minor, c.v. 9 cm., head free above the brim, and ossified; tentative traction with forceps by Dr. Reynolds failing, section after 19 hours of labor. Weight of child $8\frac{1}{8}$ lbs. Convalescence normal, baby nursed. Mother and child discharged well.

Re-entered, July, 1901, at full term of fifth pregnancy. Section by Dr. Swain, before labor began. Incision to left of former scar: numerous, dense adhesions between uterus and abdominal wall. Uterus opened well to left of former scar. Weight of baby $8\frac{1}{4}$ lbs. Convalescence normal, baby nursed. Mother and child discharged well.

3. J. W., Irish, sent into B. L. H. from O. P. D., in Sept., 1900, in labor at full term of first pregnancy, on account of probable dystocia owing to justo minor pelvis, c.v. 8 cm., ankylosis of left hip joint, and adduction of left thigh. Section by Dr. Reynolds after patient had been in labor 10 hours. Weight of baby 8 lbs. Convalescence normal, baby nursed. Mother and child discharged well.

Re-entered 1901, at full term of second pregnancy. Section by Dr. Higgins before labor began: some adhesions, notably a loop of intestine over fundus uteri. Incision of uterus and delivery of child without raising uterus from abdominal cavity. Duration of operation $39\frac{1}{3}$ minutes. Baby weighed $7\frac{1}{2}$ lbs. Uninterrupted convalescence; baby nursed mother. Mother and baby discharged well.

4. M. K., Irish, brought to B. L. H. in 1897 in first labor, after prolonged attempts to deliver with high forceps: foetus dead. craniotomy. Advised to have Cæsarean section in event of second pregnancy.

Entered B. L. H., a few days before full term of second pregnancy. Pelvis justo minor, c.v. 8.5 cm. Section by Dr. Haven, June, 1898. patient not in labor. Baby weighed $6\frac{3}{4}$ lbs. Convalescence normal, baby nursed: mother and baby discharged well.

Re-entered B. L. H. a few days before expected date of third labor. Operation by Dr. Green, April, 1902, at elected date before labor. Adhesions between uterus, omentum, and abdominal wall, twelve minutes spent in separating them. Duration of operation, 65 minutes. Baby weighed $7\frac{3}{8}$ lbs. Convalescence normal, except for slight pleurisy in third week. Baby nursed. Mother and baby discharged well. On discharge, uterus fixed to anterior wall, fundus one inch below umbilicus, cervix high in pelvis.

5. E. F., English. First labor ended by craniotomy, and followed by long and serious sepsis; second, by version, after failure with high forceps, the child dying a few moments after delivery. Third pregnancy, 1894, brought to B. L. H. Pelvis justo minor, c. v. 6.5 cm. Vagina a mass of cicatricial tissue. Section by Dr. Haven, at term, before labor began. Baby weighed 8 lbs. Convalescence normal, baby nursed. Mother and baby discharged well.

Fourth pregnancy six years later: entered B. L. H. Section by Dr. Haven at elected date before labor. Incision to left of scar; no adhesions found; scar in uterus barely perceptible. Baby weighed $6\frac{13}{16}$ lbs. Convalescence normal; baby nursed. Mother and baby discharged well.

6. S. H., Negress, I para, entered B. L. H. February, 1898, in labor at term with os uteri fully dilated and membranes unruptured. Pelvis justo minor flat, rachitic; c. v. 6.5 cm. Section by Dr. Haven; baby weighed 5 lbs. Convalescence complicated with breast abscess, and with an abdominal sinus, through which all the sero-serous silk sutures were discharged: wound closed by granulation. In hospital for three months. Lactation given up on account of sore nipples. Mother and baby discharged well.

Re-entered B. L. H., March, 1901, having been in labor nine hours: os uteri dilated one inch, membranes unruptured. Section by Dr. Green: uterus adherent to abdominal wall below umbilicus. Incision through scar directly into uterus, and child delivered without opening the peritoneum, and without lifting uterus from the abdominal cavity. Duration of operation 38 minutes. Baby weighed $6\frac{7}{8}$ lbs. Convalescence uneventful; baby nursed mother. Mother and baby discharged well, one month after operation.

7. M. D., Irish, first two labors, without the Hospital, terminated with forceps, both babies dying shortly after birth. Third pregnancy terminated in December, 1900, by Cæsarean

section performed in patient's home: the baby was discharged well; but the mother's convalescence was complicated with an abscess of the abdominal wall in the left lower quadrant, and there was a hernia at the median scar for which operation was performed in June, 1902.

Entered the B. L. H., February, 1903, nearly at term with fourth pregnancy. Pelvis justo minor, c. v. 8.5 cm.; fœtus estimated to be of average size, position O. L. A. A considerable hernia in left lower quadrant, at site of former abscess. Section by Dr. Green six days later, patient at term, but not in labor. Incision 2 cm. to left of median scar. Abdominal wall much thickened by previous inflammatory process. No adhesions over uterine scar, but broad adhesions over site of former abscess, some tied off. Uterus delivered through incision and walled off. Baby weighed 7 lbs. 14 oz. Duration of operation 1 hour 24 minutes. Convalescence normal, except for severe after pains, controlled with morphia. In absence of breast milk, baby fed artificially. Mother and baby discharged well at end of month, the mother with a firm linear scar, uterus well involuted, and apparently without adhesions to abdominal wall.

8. K. R., Irish. First labor in 1894, second in 1895, not in hospital; both terminated with forceps, both children stillborn.

Entered B. L. H., September, 1897, in labor at term. Pelvis justo minor, c. v. 8.5 cm., pubic symphysis high, arch narrow, child of average size. High forceps tried without effect. Section by Dr. Reynolds, after labor had lasted 11 hours. Weight of baby $7\frac{7}{8}$ lbs. Convalescence normal, baby nursed. Mother and baby discharged well.

Re-entered B. L. H., December, 1899, at term in fourth pregnancy, and prepared for a second Cæsarean section, which was performed by Dr. Reynolds before labor began. Rather dense adhesions between omentum and abdominal wall. Old scar in uterus resected. Cervix uteri dilated for drainage. Baby weighed $7\frac{1}{2}$ lbs. Duration of operation 45 minutes. Convalescence normal, baby nursed mother. Mother and baby discharged well.

9. Same patient as number 8. Re-entered B. L. H., December, 1901, for her third Cæsarean section, at term in fifth pregnancy. Fœtus estimated to be below average size, and it was thought it might prove possible to deliver safely with high forceps; but as no positive assurance of a living child could be given, patient chose to have a third section. Operation by

Dr. Green, at elected date before labor. Abdominal incision was made between two previous scars: rather strong adhesions between omentum and abdominal wall were separated, and uterus raised from cavity. Baby weighed $6\frac{7}{8}$ lbs. Duration of operation 63 minutes. Convalescence uneventful, baby nursed mother, abdominal incision healed by first intention. Mother and baby discharged well.

Of these nine repeated sections, all performed on a relative indication, four were done, one each, by four members of the staff, and five by the writer. Two were done after labor had been in progress for nine hours each, and seven at an elected date before labor began. One patient had her first section without the hospital; six had their first and second, and one her first, second, and third sections, within the hospital. In one case there were no adhesions: in seven cases there were more or less adhesions, and the duration of operation was from $39\frac{1}{3}$ minutes to one hour and 24 minutes; in the case that died of shock the duration was 48 minutes. In one case the utero-abdominal adhesions were so extensive that the fœtus was delivered without opening the peritoneal cavity, and the time of operation was 38 minutes. The nine infants were discharged well; and of the nine mothers, one died, a maternal mortality of 11 per cent.

These results are not reported as unique or remarkable: repeated sections have resulted favorably in other clinics. But they are reported in the hope of influencing opinion that the time has come when this Society should withhold its approval of the doctrine that women should be sterilized at their first Cæsarean operation, in order that they may not be subjected to the risks of a repeated section. It is conceded that in the presence of serious disease of the uterine appendages, surgical judgment may properly decide on their removal at the time of performing the Cæsarean section; it is conceded that when the uterus is believed to be already infected, total hysterectomy may give the patient an improved chance of recovery; and it is conceded that hysterectomy is justifiable in the presence of fibroids so situated that they cannot be subsequently removed by myomectomy without sacrificing the uterus. It is also granted that in the rare event of the uterus failing to contract, and of serious, otherwise uncontrollable, hæmorrhage ensuing, it is justifiable to tie off the uterus and remove it. It is probably true that after hysterectomy convalescence is quite as rapid as when the uterus is sutured; and it is doubtless true that hysterectomy may be performed more rapidly

than hysterotomy and suture: the claim that there is no more shock following hysterectomy than usually attends the classical Cæsarean operation, I am not prepared to admit.

But in the absence of the above-mentioned pathological conditions, which may necessitate destructive surgery, is it justifiable, in performing Cæsarean section on either an elective or an absolute indication, to remove normal organs or to resort to other procedures with a view to preventing subsequent pregnancy and the risk of a repeated section?

It is said that many women that come to Cæsarean section belong to the depraved class, are often illegitimately pregnant, that they and their progeny are likely to be a constant burden on the State, that the continued fertility of such women is therefore undesirable, and hence that it is justifiable to sterilize them in performing their first hysterotomy. Is it then considered justifiable to castrate men of the depraved, pauper class, with a view to diminishing illegitimacy and pauperism? And would it be well to go further and sterilize depraved, pauper women, without regard to their capacity for normal childbirth?

It is evidently believed by some that in the cases of rachitic dwarfs, and of the victims of tuberculosis or other dyscrasia that renders subsequent pregnancy undesirable, we should conclude the first Cæsarean section with hysterectomy. As sociologists we may well deplore modern efforts to promote the survival of the unfit; but is it right that as physicians we should assume to judge, in advance of civil law, who should and who should not be allowed to conceive children? From a sociological point of view it might be well to castrate tuberculous, syphilitic, and epileptic men; but has the time come when it is right to burden the medical profession with decisions of such great responsibility? And is it wise to vest in the general profession a power of such magnitude?

It has been said that most women with marked dystocia have not the power of intelligent choice between foetal destructive operation and the Cæsarean section; or again, between uterine suture and the possibility of future fertility on the one hand, or sterilization on the other. This is probably true; and in such cases a wise, humane, and conservative judgment should be exercised for them. But suppose an intelligent woman, submitting to hysterotomy on an absolute indication, asks to be sterilized in order that she may not again become pregnant. Ought we to accede to her request? While we may properly and

legitimately induce abortion in certain cases of advanced, organic cardiac or renal disease, or of uncontrollable hyperemesis, may we properly and legitimately induce abortion because a woman chooses not to undergo the risks of pathological labor? And what is the essential difference between sterilizing a woman with an impossible pelvis at her first hysterotomy, and repeatedly inducing abortion whenever she allows herself to become pregnant?

It may be said that these are questions of sentiment, of casuistry; but I venture to assert that the only safe and moral ground for the medical profession is that based on modern medical science, uninfluenced by sociological considerations. If a woman comes to Cæsarean section and recovers, she and her husband, if she has one, should be informed of her condition and of the prognosis and treatment in the event of future pregnancy: if subsequent pregnancy ensues, the responsibility of treatment rests with the obstetric surgeon; but the responsibility for the condition rests elsewhere.

DR. J. WHITRIDGE WILLIAMS, of Baltimore, said the remarks of the essayist were of great importance, in that he had seen a large number of obstetrical cases. To a certain extent, he agreed entirely with him, with this modification: He did not believe we ought ever, in the first pregnancy or first Cesarean section, to remove the uterus or to sterilize the patient unless there was some distinct indication as manifested by a pathological condition. On the other hand, he did not believe the obstetrician was justified in allowing pauper patients to go on and have Cesarean section after Cesarean section performed, and the rule he made for this class of cases was to do the first Cesarean section, and not think of removing the uterus. These patients would come back again after a second Cesarean section, and then the uterus could be removed or the tubes excised. The obstetrician was giving these patients a double chance by so doing, and from then on they did not deserve further consideration. Many of these women were of a low grade of intelligence; he recalled some of them who subsequently went into the country districts and died from rupture of the uterus. He had seen a large number of colored women die from rupture of the uterus in the city of Baltimore, because they were too lazy to secure a doctor and be sent to the hospital.

DR. EDWARD P. DAVIS, of Philadelphia, Pennsylvania, said, from the standpoint of sociology, the woman and her husband had a right to request that she be rendered sterile. This could meet with no opposition. In a case in his own practice, one with double hip joint disease, Cesarean section and sterilization were requested by both husband and wife. The request was acceded to on those grounds. Repeated Cesarean section, scientifically speaking, was

most successful. Recent observations had given some indication as to the method of its performance. Sinclair had urged in all hysterotomies that efforts be made to secure firm adhesion between the anterior surface of the uterus and the abdominal wall, and Morris, in a recent paper, had collected a large number of cases, giving a low mortality rate for repeated operations, less than eight per cent.

DR. HENRY D. FRY, of Washington, D. C., felt interested in the subject, because at a local medical society he reported three cases of Cesarean section which he had performed in the last four months. This question was brought up and he was criticised for not having rendered these three women sterile. He was very glad to hear what had been said by the essayist and others who had discussed the paper in justifying him in not having done so, in a previous Cesarean section, although he was requested to render the patient sterile by excising a section of the Fallopian tube. He believed that was a better method if we were going to render these patients sterile, rather than to remove the organ, because if the case was infected, and forceps were used, or there was danger of infection, a Porro operation would be justified, but where sterilization was called for, exsection of a segment of the tube would be the better plan.

He was glad to hear what Dr. Davis had said in regard to operating through the scar. He had noticed in the cases reported by Dr. Green that there was only one in which this was attempted. The scar seemed to have been avoided, and the incision was made by the side of the scar. He said, Why not operate directly in the line of previous operation? and finding the uterus adherent one could go right into it without opening the peritoneal cavity. This would be a great advantage.

DR. CHARLES JEWETT, of Brooklyn, N. Y., said there was one argument in favor of hysterectomy in these cases which had not been mentioned, and that was the possibility of the woman not accepting a second operation. Such an experience had occurred to him twice within the last two years, and both women had died. With regard to the question in general, he could easily grant the necessity for hysterectomy or any means of sterilization, as the danger was not as great as it was years ago, when the results by Cesarean section were not as good.

DR. GREEN, in closing the discussion, said he had only a few words to say with reference to going through the scar. Naturally one would always go through the scar if by this was meant adhesion between the uterus and abdominal wall, which was done in one case. In that case he thought there was a broad adhesion which would make it possible to deliver the child with the extra-peritoneal operation. In the other cases this adhesion was not present to a sufficient extent to make the operation extraperitoneal; therefore, the incision was made on one side of the scar, in order to get better healing and better union of the incision.

THE SURGICAL TREATMENT OF EARLY DIAGNOSED CANCER OF THE UTERUS, MORE ESPECIALLY BY HYSTERECTOMY.

This was the title of the President's Address, which was delivered by Dr. Joseph E. Janvrin, of New York city.

After paying fitting tributes to Drs. John Byrne, T. Gaillard Thomas, and Edward W. Jenks, who had up to their decease been prominently identified with the Society, he discussed the topic proper of his address. Among other things, he said that in his early operations, principally vaginal, he made many operations with the hope of curing patients, which a more extended experience soon showed him should have been done simply with the idea of removing a very offensive organ, checking hemorrhage and the offensive discharge, and so prolonging life and making it more endurable. During the past fifteen years more care has been exercised in the selection of cases. Fortunately more cases have been diagnosed while the disease was local, and before any systemic infection had occurred, and, as a logical deduction, the percentage of ultimate cures has been much more satisfactory.

He took up first the development of cancer in and from the cervix, saying that Pozzi divides epithelioma of the cervix and vagina into four classes during the initial stage of its development. First, papillary or cauliflower; second, nodular or parenchymatous; third, cancer of the cavity of the cervix (boring or eating cancer); fourth, vaginal, usually commencing in the cul de sac, and then extending to the cervix and adjoining tissues.

His own observations as to the extension of epithelioma beginning in the cervix are somewhat as follows: (1) Up and into the cervical canal. (2) Up and into the uterine body. (3) To the tissues surrounding the cervix, the parametrium especially. (4) Downward upon the vaginal mucosa, and after a certain time through the mucosa into the wall itself.

After going extensively into the literature of the subject, and quoting at considerable length the statistics of both European and American operators, the author stated that his own statistics up to Jan. 1, 1899, are as follows:

Abdominal and Vagino-Abdominal Hysterectomies.

Twelve cases, two cured, more than eight years having elapsed. Six recurrences. Four deaths from operation, two from shock, one from septicemia, and one from uremia. Percentage of cures, 16.6.

Vaginal Hysterectomies.

Thirty-eight cases, ten permanently cured. Fifteen recurrences. Four deaths from operation. Ten lost sight of after few months. Percentage of cures, 26.3. Total number of cases, fifty; twelve cured; general percentage of cases, 24.

The fact has been brought out that in about one-third of all

cases of uterine cancer involvement of the regional glands in the pelvis takes place. This involvement, as a rule, occurs but very seldom in the incipient stage of the disease, but usually when the primary cancer has more or less advanced, and extended into the parametria or other adjacent structures. Recurrence after the old methods takes place in four-fifths of all cases in or near the cicatrix in the vagina, while it occurs in only one-fifth in the glands. Abdominal radical operation with removal of the pelvic glands strives to lessen the high percentage of recurrences, but so far has not been able to attain the desired goal. This deficiency mainly depends upon anatomical and technical difficulties in routine ablation of pelvic glands. In a large number of cases this radical procedure with its great and manifold dangers has been found to be unnecessary, as there were no diseased glands anywhere within the pelvis. It must, however, be emphasized that these conclusions are not as yet definite.

The author believes that vaginal hysterectomy, with removal of as much parametrium as is possible by this method, and also the removal of the upper half inch or more of the vagina, will accomplish just as much as any other method and, at the same time, carries with it the least danger as an operation *per se*, for it is extremely rare that a patient succumbs to this operation. It is by following out this rule that the statistics of his own cases up to January, 1899, which he has already given, have been so favorable.

During the past four years (since January, 1899) he has extended the field of operation, not with any idea of getting as good ultimate results, but simply for the purpose of removing a highly offensive local condition, and in that way making a longer lease of life more comfortable to the patient, and less offensive to herself and her friends. The use of the electric cautery clamp, as improved by Dr. A. J. Downes, theoretically would give the best results in this class of cases. No doubt it will do so, as the technique of the operation becomes more familiar, and the skill necessary for its application becomes greater in the hands of those who are making use of it. This will probably be especially true in cases in which the disease is locally somewhat advanced, too much so to be considered in its early stage and suitable for simple vaginal hysterectomy by the knife or the angiotribe; for the cooking of the parts will leave a better protected surface against the immediate extension of the disease, and, more than that, the fact that in a very large proportion of cases the lymphatics and glands are very slow to take up the disease, will, he thinks, become an additional factor in impelling gynecologists to make use of this method of procedure, not only where simple vaginal hysterectomy would necessarily be unpromising, but also in many instances in which abdominal hysterectomy, with attempts to enucleate the lymphatics and glands, has been thought to be justifiable.

In closing, Dr. Janvrin said that the only object of his address was (1) to give the conditions under which hysterectomy should always be done for cancer of the uterus, leaving it a matter of

choice to each individual operator as to whether he selects the vaginal or the abdominal or the combined vagino-abdominal route; and, at the same time, to fortify this position with sufficient statistics, at home and abroad, to make the position tenable, and to impress upon the profession at large the absolute need of recognizing the early symptoms, and then seeking the advice and assistance of some surgeon who has had a good amount of experience in these cases, so that hysterectomy can be done when it ought to be done. (2) To describe another class of cases in which any operation, no matter how radical, will, in a large majority of cases, fail to give permanent relief; but, at the same time, to state his entire approbation of it in the hands of expert operators. It is only by continuous work and the accumulation of the statistics in these major operations at the hands of master operators that one can finally come to a definite understanding as to what can be accomplished, and what cannot be accomplished in the surgical treatment of cancer of the uterus.

On motion a vote of thanks was extended to the President for his interesting address.

DR. GEORGE M. EDEBOHLS, of New York city, read a paper on

RENAL DECAPSULATION FOR PUERPERAL ECLAMPSIA.

This operation for puerperal eclampsia of renal origin is the logical outcome of the encouraging results following the author's operation in cases of chronic Bright's disease. The author has successfully performed bilateral renal decapsulation for puerperal eclampsia upon a primipara two days after forced delivery. The convulsions began before labor, and continued to the time of operation, the patient indeed having a convulsion while under chloroform on the operating table. This operation, which was performed on Feb. 17, 1903, is believed to represent the first instance of renal decapsulation, or, for that matter, of any operation upon the kidney or kidneys, ever undertaken for the cure of puerperal convulsions. The favorable results, immediate and remote, in this case, full details of which are given in the paper, at once assign a place to renal decapsulation as one of the resources at the command of the profession in the treatment of puerperal eclampsia. A woman suffering from uremic convulsions is entitled to the positive benefits of decapsulation, whether pregnant, in labor, or in the periprium.

DR. GEORGE TUCKER HARRISON, of New York city, thought nothing could be said against the operation proposed by Dr. Edebohls, with the limitation he had assigned to it. Certainly the case reported was an interesting one. However, there were few cases of puerperal eclampsia of nephritic origin. Virchow declared long ago that the renal changes were too slight to base any theory as to the nephritic origin, in studying the etiology, of puerperal eclampsia, hence it was necessary to seek elsewhere for the cause

than in the kidney. In all probability a large majority of pathologists agreed on the point that the renal changes were secondary, not primary. He did not know that even under these circumstances but what the operation might not be of utility, because whether the renal changes were primary or secondary, they existed, and of course one could not argue on the basis of one case, still the improvement was so marked that he agreed with the essayist that in lying-in institutions it would be well in some of these desperate cases of eclampsia to give this method a further trial.

DR. PHILANDER A. HARRIS, of Paterson, N. J., said there was one item in connection with this subject of which very little had been written in books, and what value this operation would have in preventing the eclamptic seizures which befell these patients and attracted forcibly the attention of the physician he did not know. The point he desired to refer to was that very little had been written about the subsequent history of renal troubles in cases of eclampsia. He would like to know whether the essayist had followed the cases, and whether he had taken the trouble to find out whether the condition continued; in a considerable percentage of cases, symptoms of exudative nephritis continued, so that if this operation was of any value, it would not only be in connection with obstetric patients, but also in a considerable number of cases in which the symptoms and phenomena which physicians were accustomed to observe in connection with nephritis were continued.

DR. EDWIN B. CRAGIN, of New York city, was sure that most of the gentlemen had to do with eclampsia now and then, and personally he was indebted to Dr. Edebohls for careful work along this line.

There were three or four questions that presented themselves to him during the reading of the paper. First, the danger of the operation. He would admit that this would be slight in Dr. Edebohls' hands; but in the last twenty-nine cases of eclampsia, with convulsions, at the Sloane Maternity, there had been only one death. One death in twenty-nine cases from the ordinary treatment of eclampsia was not very great, and the question arose whether deaths from renal decapsulation would possibly equal that in anyone's hands but his.

There were one or two other points which presented themselves in thinking of his (Edebohls') case. In the first place, if he understood the essayist correctly, the woman was allowed to have several convulsions before any attempt at emptying the uterus was made. Secondly, after the woman had had her uterus emptied, she was subjected to another shock, slight, he admitted, in the repair of the laceration. The question occurred to him whether that under similar circumstances might not be open to question.

With reference to the recovery of the patient, it was very satisfactory to Dr. Edebohls, and to the profession, and if one could see from the future results of this work under similar circumstances that the mortality was as low as from the ordinary treatment of

puerperal eclampsia, those who had to deal with the condition would be glad to give it a trial. If the results of the essayist were such that he could postpone or make unnecessary the emptying of the uterus, of course the results for the fetus would be well worth any labor he had devoted to it.

DR. EDEBOHLS, in closing the discussion, said the questions propounded by Dr. Cragin called for a few remarks. He (Cragin) had said that of twenty-nine cases of puerperal eclampsia at the Sloane Maternity, one died. To get a fair estimate of the mortality, first of all, it was necessary to know how many of these cases of eclampsia were of renal origin. It was necessary to know in how many cases the convulsions recurred before labor was induced, or came on naturally and persisted after labor had terminated.

The mere fact that Dr. Cragin had seen twenty-nine cases of puerperal eclampsia, with one death, did not mean much.

In the speaker's own case, the operation was performed because he and his consultants were at their wits' ends. The patient had convulsions before labor; they stopped forty-six hours after labor, then recurred. The woman was uremic; coma was deepening, and there was every sign of rapidly impending dissolution. He performed the operation rapidly, and the result was favorable. Whether the result would have been as favorable without operation, he did not know. At any rate, the result in this case encouraged further trial of the remedy in such cases. Personally he did not see these cases frequently, and therefore would not have occasion to practice renal decapsulation very often, but those whose practice was such as to enable them to see many cases of puerperal eclampsia should arrive at a decision as to whether renal decapsulation was of any real value or not.

He thought there was a little criticism implied in the remarks of Dr. Cragin with reference to the secondary operation that was done on the next day, when there was a predisposition to eclampsia. The second operation was done because the woman was in convulsions during delivery, and remained so practically up to the end. There was no hemorrhage from the lacerations of the cervix. Labor had not begun; he delivered rapidly, and as the woman was under chloroform most of the time, he did not think it advisable to suture the lacerations of the cervix, and so this was postponed until the next day. In the meanwhile, a second operation of sewing up the lacerations was undertaken. Even following this there were no convulsions until forty-six hours after delivery, and they occurred in increasing violence.

CARCINOMA OF THE CERVIX UTERI.

BY

THADDEUS A. REAMY,

Cincinnati, Ohio.

[1st. *Spontaneous recovery from carcinoma does not occur.* 2nd. *Unequivocal recovery lasting for 10 to 25 years, of even two cases following removal of the diseased and adjacent tissues, proves (a) the curability of carcinoma of the cervix, (b) its local origin.*]

CASE I.—Woman, thirty-seven years of age, resident of Cincinnati, mother of two children, consulted me February, 1873. History of menorrhagia with more or less intra-menstrual hemorrhage. Digital examination. Cervix enlarged, hard, nodular, not freely movable. At left margin of os an ulcer could be detected by touch. Examination caused loss of blood. Visual inspection through speculum, revealed distinct ulceration at the point indicated by touch. By tenaculum and sharp scissors removed a plug involving border of ulcer and tissue beyond.

Microscopic examination by Dr. H. A. Clark, at the time lecturer on chemistry and microscopy in the Medical College of Ohio. He reported "fibrous stroma with ovoid alveolar spaces, cells with large nuclei, compressed epithelial cells, etc." Diagnosis—Epithelial cancer.

Operation March 18th, 1873. Assisted by Prof. Clark and two of my private students, I removed with Cutting gouge forceps, a Simon scoop, and scissors the infra-vaginal cervix. With small sized Simon scoop the upper portion of cervix was funneled out nearly to os internum. Dressed with lint saturated with sol. bromine one to thirteen of alcohol, well packed into the excavation. Vagina tamponed with absorbent cotton soaked in sol. bicarb. soda.

All dressing remained 30 hours. On removal parts washed with warm sol. Chlor. sodium. Subsequent dressings, lint in sol. carbolic acid 1 to 270 of proof spirits.

Results.—Perfect recovery. Considerable cicatricial contraction in upper anterior portion of vagina.

Patient examined by me May, 1876. Health perfect. Os uteri very short, but healthy.

Abstract.—See report in full in Transactions Ohio State Medical Association for 1876. Pages 140 to 143. This patient was

reported as being in excellent health in April, 1888, 15 years after operation.

In May, 1891, 18 years after operation, she was examined by me in my office, at my request, in the presence of Dr. E. W. Mitchell, now a member of the faculty of the Miami Medical College. Health perfect, vaginal vault smooth. Senile changes normal.

CASE II.—Mrs. S., residing near Ohio River a few miles above Cincinnati, consulted me May, 1874. Age fifty years, six children, youngest ten years; no abortions or miscarriages. Menorrhagia for a year. Within past two months almost constant bloody discharge, some odor, some flakes in discharge. Suffered attacks of sharp pelvic pain.

Examination by touch, and visual, by speculum. Cervical induration. From right and left angle of os firmly embedded in wall, hard nodular masses; two ragged ulcers extending into cervical canal. Section of nodule secured. Microscopical examination by Prof. Clark, who reported unequivocal cancer.

Assisted by Prof. H. A. Clark and two pupils, Giles Mitchell and Elmer Jackson, the cervix was removed by the same instruments and in same manner as in Case I. Cervix was hollowed out to the os internum.

After treatment same as in Case I.

Results.—Perfect recovery. Gained in weight. Was in good health May, 1876.

Abstract.—See full report Ohio State Medical Society Transactions for June, 1876.

This woman examined by me at my office in May, 1878. No evidence of return of disease. She died one year later of pneumonia. *Nine years without recurrence.*

CASE III.—Mrs. B., resident of Covington, Ky., consulted me in February, 1879. Age thirty-four. Anemic. Three children, two abortions. Had suffered of leucorrhœa for two years, past six months a bloody vaginal discharge. Coitus generally followed by "bloody show" but not painful. Digital examination. Cervix greatly enlarged nodular thickening about os, anterior lip elongated, uterus mobile. No enlargement or displacement of ovaries detected. Examination caused flow of blood. Examination by Sims speculum. Left lateral cervical laceration with a cicatricial plug in angle. Anterior lip elongated and thickened. Nodular condition extended about half way to cervico-vaginal

junction. Three small ulcers in anterior lip. Vaginal walls healthy. Sound entered uterine cavity $3\frac{3}{4}$ inches.

Diagnosis.—Cancer. No microscopic examination made. Operation at patient's residence March 8th, 1879. Assisted by Drs. Thomas and Jessup. Cervix was amputated by scissors at vaginal junction making anterior and posterior flaps over stump. Mucous membrane stitched after my well-known method. My silver wire twisted stem pessary inserted to prevent cervical stenosis.

Recovery prompt. The specimen removed was submitted for microscopical examination to Dr. Frederick Kebler, lecturer on pathology, Medical College of Ohio, who on April 26th made the following report:

"Specimen lobulated at outer limit. On section tubular structure surrounded by fibrous layers, nests of cells connected by epithelial bands. The centers of lobules are some of them filled with colloid matter, others with hard masses. The tubules probably arose from the cervical glands. The above condition was found on section to extend toward base of the specimen for a distance of more than a half inch. Sections at base of the specimen show perfectly normal structure.

"(Signed) KEBLER."

The above is case 15 in my tabulated 55 cases of amputation of the cervix uteri for cancer. See Transactions American Gynecological Society, Vol. XIII, pages 171 to 184. When that report was made this woman had been exempt from recurrence eight years. She gave birth to a healthy child in January, 1889, when she was nearly forty-two years old, and five years subsequently she was examined by me and free from disease. *Thus making fifteen years without recurrence.*

CASE IV.—Mrs. W., of Cincinnati, wife of a prominent business man, mother of a now prominent young physician, consulted me March, 1889. She was forty-four years of age, mother of four children, youngest five years old. Had not menstruated for past two years. During past year had suffered of leucorrhea. For three months there had been an occasional show of blood. Had noticed recently some odor from vaginal discharge. Some pelvic pain. Her general health was, however, excellent. Of late had gained in weight slightly, and somewhat inclined to obesity. Digital examination. Cervix widened, very nodular and hard, lips much thickened. On left side deep fissure as though there had been an extensive laceration.

Speculum examination. Left side showed laceration nearly to

vaginal junction. In bottom of tear liberal amount of cicatricial tissue. Each lip much thickened, marked eversion. Just within cervical canal, anteriorly, at base of large nodule was a distinct ulcer. At other points there was abrasion of mucous membrane. One large nodule showed whitish shiny surface, from which, on pressure, a pale reddish juice escaped. From the ulcer, as well as from abraded surfaces, considerable blood was discharged during examination. One point which resembled somewhat an enlarged Nabothian gland was punctured, but no characteristic fluid escaped, only bloody serum.

Diagnosis.—*Cancer.*—So sure was I of the correctness of the diagnosis that I did not deem it necessary to await microscopical examination.

Ten days subsequently, at patient's residence, assisted by Dr. C. L. Bonifield and Dr. E. W. Mitchell who administered the ether, I amputated the cervix with scissors. The anterior and posterior flap operation was made. The cervix was seized with heavy volsellum forceps and the uterus, which was freely movable, was dragged down. The incisions being commenced anteriorly and posteriorly not quite at the cervico-vaginal junction, were carried high up on either side to the junction, cutting away all of the cicatricial tissue on the left side, making the cervix, when removed, wedge shaped, the incisions having met just below the level of the os internum. On the left side there was free bleeding so that it was found necessary to ligate two arteries. This was done with catgut. The uterine artery was not divided. Reamy's twisted silver wire pessary was inserted as a precaution against stenosis, and the flaps closed by silk worm gut sutures—which were allowed to remain eighteen days. No dressings of any character. No vaginal douches until eighth day—then only with weak carbolized water. Union by first intention. Was not at any time any vaginal discharge. The specimen was submitted to Dr. James M. French, Demonstrator of Pathology Medical College of Ohio, who reported: "Cylindrical celled epithelioma." By arrangement with this patient and her husband, she was examined by me every two or three months during the next two years, and three or four times annually until six years had elapsed. She was examined by me three years ago. I telephoned her son, Dr. W—., two months since asking for his mother's condition; he reported her well. *Thus twelve years have elapsed without recurrence.*

CASE V.—Mrs. Van H., resident of Westchester, Ohio. Entered my private hospital January 4, 1885. She was 43 years old.

Mother of four children. She had suffered for six months of hemorrhage from vagina. Was pale and thin.

Examination digital and by speculum. Cervix so enlarged as to fill upper portion of vagina, a rough irregular mass, friable—bleeding at slightest touch, easily broken down. The examining finger, however, could be carried around the mass, touching apparently healthy cervical mucous membrane at every point of junction with vagina; with difficulty the os was made out and Simpson's uterine sound passed to a depth of four and three-fourths inches to fundus. Uterus freely movable.

Diagnosis.—Cauliflower cancer.

January 20.—Assisted by the house physician, Dr. Hiron, now of New York city, and Dr. E. W. Mitchell, under ether anesthesia, the vaginal mass was scraped away by a heavy sharp Simon scoop, leaving a comparatively healthy cervix protruding into the vagina at least two-thirds of an inch. Bleeding was free, but soon checked by compresses and Paqualin cautery button. The cervix was now seized and drawn down, anterior and posterior incisions made by scissors, bladder separated from upper cervix by fingers and closed scissors, not, however, opening peritoneal cavity. Neither was the peritoneum opened posteriorly, but dissection was carried well up under Douglass pouch. Now the cervix was bisected and cut away. Uterine artery or a large branch of same, pulsated strongly and was secured by a long full curved aneurism needle and ligated with silk before cutting through this portion of the cervical flap. Upper portion of wound closed by chromicised catgut, and lower portion by silkworm gut. Twisted silver wire pessary inserted. Few strips of gauze from a carbolic acid solution 1 to 6,000, in vagina. Recovery perfect.

Macroscopically the portion of cervix above the vaginal junction seemed healthy. All the masses removed by scoop, and that removed by scissors, submitted for microscopical examination to Dr. Frederic Kebler, at the time Lecturer on Histology and Demonstrator of Pathology and Histology Medical College of Ohio, and Pathologist to the Cincinnati Hospital. He reported April 20th, 1885: "Dear Dr. Reamy: The specimen presented by you for examination shows 'typically.' The disease is what the French call 'adeno-carcinoma.' It is the so-called cauliflower cancer. Will give you exact report of findings if you desire. Yours truly, Kebler."

P.S.—The disease is confined exclusively to one end of the cervical sections. Outer portions normal. K.

This woman is now residing at Westchester, Ohio. I have seen her from time to time. No evidence of return of the disease. In a letter from her daughter, Miss Nellie Van H., dated April 10, 1903, I am informed that there has been no recurrence. *Thus we have eighteen years since removal without recurrence.*

CASE VI.—Mrs. M. W. was admitted to my service in Cincinnati Hospital in November, 1891. Patient was 41 years old, mother of two children. She was pale but not emaciated. She had for past three months suffered of slight bloody vaginal discharge, not constantly, but at times more profuse. Prior to commencement of this bloody discharge she had not menstruated for one year. She suffered occasional pelvic pains. .

Examination under ether. Intravaginal cervix much enlarged, external os quite patulous, lips thickened and everted. Could carry the examining finger one-half to three-quarters of an inch within the cervical canal, where it encountered a moderately firm but very friable mass. Small portions of it could easily be broken away by the finger nail used as a curette. This attended by loss of blood, uterine sound showed but little increased depth of cavity; uterus found to be freely movable. Could detect no involvement of ovaries or thickness of broad ligaments. Could detect no inguinal or obturator glandular enlargement.

Diagnosis.—Carcinoma of the cervix.

Operation December 3, 1891, in public amphitheatre of the Cincinnati Hospital. Vaginal hysterectomy, including uterus, ovaries and tubes. Vessels secured by four clamp forceps. Iodoform gauze strips loosely packed between forceps, to guard against hernia of intestines. No stitching of peritoneum. Clamps removed in fifty hours and gauze on third, fourth and fifth days. No vaginal douche until sixth day.

Recovery speedy. Vaginal vault sound within five weeks. Patient left her bed in three weeks.

Specimen showed on examination involvement of most of the cervix. Some chronic endometritis. Submitted for microscopical examination to the pathologists of the hospital, Drs. Kebler and Cameron, who reported "cervix extensively involved by squamous cancer." Body of uterus, ovaries and tubes comparatively normal.

The following note is from Dr. Magnus A. Tate, now associated in the Faculty of the Miami Medical College. He witnessed the operation and has since been physician to the woman.

"CINCINNATI, April 6, 1893.

"*Dear Dr. Reamy:*

"Mrs. Matilda Wilson was born October, 1859. She was operated on by you at the Cincinnati Hospital December 3, 1891. Vaginal hysterectomy, uterus tubes and ovaries removed. Her name is now Mrs. L. She resides at No. — street, Covington, Ky.

"Very sincerely yours,

"MAGNUS A. TATE."

In this case we have twelve years exemption.

No authorities are quoted, it being my purpose to prove from my own work that in some cases, when operated on early cure follows removal of diseased tissue. I make no point as to the method of operation. That in most of the cases quoted the operation was simply amputation of the cervix I leave without comment.

Comparison of methods is no part of my present purpose. No treatment can be of any permanent avail unless instituted in the very earliest stages of the disease, before there is any general lymphatic involvement. In most, if not all, cases of epithelioma of the cervix several weeks, indeed months, elapse before glandular involvement or extension from the point of attack. During this stage is the time for operation, and if done during this stage a cure may be expected in a good per cent of cases. If the operation be made at this stage it is to my mind doubtful whether anything can be gained by removal of the uterus. I must be pardoned for standing in this view on ground occupied more than ten years ago.

It remains only now to emphasize an old lesson. Let the family physician watch with greater zeal and more care than ever in the past for the first manifestations of the disease. He should not wait for the patient to ask him why she has a "bloody show" at irregular times, but should make it his duty to put every married woman over thirty years in families under his care on her guard, explaining to her fully first symptoms and the importance of communicating them. And in any suspicious case the family physician should insist upon an examination.

OAK STREET.

PRIMARY CARCINOMA OF THE VULVA.

BY

REUBEN PETERSON, M.D.,

Professor of Gynecology and Obstetrics, University of Michigan, Ann Arbor.

IN spite of the comparative rarity of primary carcinoma of the vulva, it has been my good fortune during the past three years to meet with four cases of this disease. Unless I am mistaken, the subject of malignant disease of the female external genitals has never been brought up for discussion before this society. This is not commensurate with the importance of the subject when in the practice of a single member four cases are encountered in a very few years. A perusal of the literature of primary carcinoma of the vulva does not bear out the contention of one of our members that the final word has been said upon most gynecologic subjects.

CASE I.—Mrs. C., widow, age forty-nine, mother of several children, consulted me in January, 1900, at the Post-Graduate Hospital, Chicago. Eleven years before she had had a growth removed from the larynx. Opinions differed as to the nature of the growth, which had not returned or given her any annoyance since its removal. In September, 1899, the patient noticed an itching about the vulva. The parts became painful and a growth was noticed on her left side. This gradually increased in size and became ulcerated. Antisyphilitic treatment proved of no avail and she was sent to the hospital.

Examination showed an ulcerated area of the left labium minus $2\frac{1}{2}$ centimeters long by $1\frac{1}{4}$ centimeters wide. It was situated on the inner side of the labium, its upper border reaching to, but not involving the glans clitoris. It was plaque like with beveled, not excavated edges. Its surface was gray in color, with no bleeding points. The growth was hard, indurated, perfectly movable and unattached to the deeper structures of the vulva. The inguinal glands could not be palpated.

Thinking that the diagnosis lay between epithelioma and syphilitic lesion of the vulva, the patient was advised to have the small growth removed for microscopic examination. In case the latter

revealed epithelioma, the most probable condition, a radical removal of the entire vulva including both sets of inguinal glands was advised.

The first suggestion was accepted by the patient and on January 23, 1900, the growth was removed by an elliptical incision,



Fig. I. Carcinoma of left labium minus. Growth very movable and circumscribed.

which was carried just outside the borders of the ulcerated area. The line of incision was brought together by interrupted silk-worm-gut sutures and healed by first intention. Microscopic examination showed the growth to be a typical epithelioma with cornification and formation of epithelial pearls.

In spite of all advice, the patient refused absolutely to undergo a second operation for removal of the entire vulva and inguinal

glands. Through her physician, Dr. A. J. Brislen, of Chicago, I have learned that a short time after the operation the inguinal glands became enlarged, and broke down with extensive supuration. She died from an extension of the disease one year after the operation.

CASE II.—Mrs. H., widow, age eighty-four, was admitted to the Presbyterian Hospital, Chicago, July 31, 1901, while I was temporarily in charge of Dr. J. C. Webster's service.



Fig. II. Case 2. Carcinoma of right labium majus, with ascending nodules. The clitoris is not involved but simply covered by the growth.

Through his kindness, I am permitted to report the case. The patient is the mother of six children, four of whom are still living. There is no family history of tuberculosis or cancer. The patient comes to the hospital because of a growth on the vulva, caused by a fall three months before. At times she suffers considerable pain in the region of the growth, especially when she sits in a chair. Ever since the accident, micturition has been painful. She has had a foul discharge for some time.

Examination showed a large fungoid, cauliflower mass the size of a hen's egg starting from the sulcus between the right labium majus and minus. Its attachment was $1\frac{1}{4}$ centimeters to the right and a little above the glans clitoris. The tumor was 5



Fig. III, Case 2. Carcinomatous growth drawn toward the right to show two secondary growths.

centimeters long, 3 centimeters wide and was raised 2 centimeters above the surrounding surface. The color was pinkish gray. It was sharply circumscribed and its margins rose abruptly from the surrounding skin. At the lower end of the right labium majus was an indurated, slightly elevated patch 2 centimeters in diameter. About the middle of the left labium majus was another

indurated nodule, twice the size of a pea. Palpation failed to reveal any enlargement of the inguinal glands.

Operation August 2, 1901. Profiting by the experience gained in the former case, I determined to make the radical operation at once. It was not deemed advisable to remove the inguinal glands for fear of carrying infection upwards from the sloughing cauliflower mass on the vulva. An elliptical incision was made about



Fig. IV. Incision goes well outside of growth. Deeper tissue to be closed by buried catgut suture.

both primary and secondary growths. Above, the incision began some two inches above the base of the clitoris, and was carried outwards an inch beyond both primary and secondary growths. Below, the incision ran $1\frac{1}{2}$ centimeters below the normal situation of the fourchette. The growth was not adherent to the underlying structures. The clitoris, and both the labia majora and minora were thus removed. Two and a half centimeters of mucosa was left about the meatus urinarius. The profuse hemor-

rhage was controlled by artery forceps and sponge pressure. The deeper parts of the wound were brought together by buried cat-gut sutures. The operation was then completed by uniting the cut edge of the mucosa to the skin incisions by interrupted silk-worm-gut sutures.

There was some suppuration along the lines of incision, but

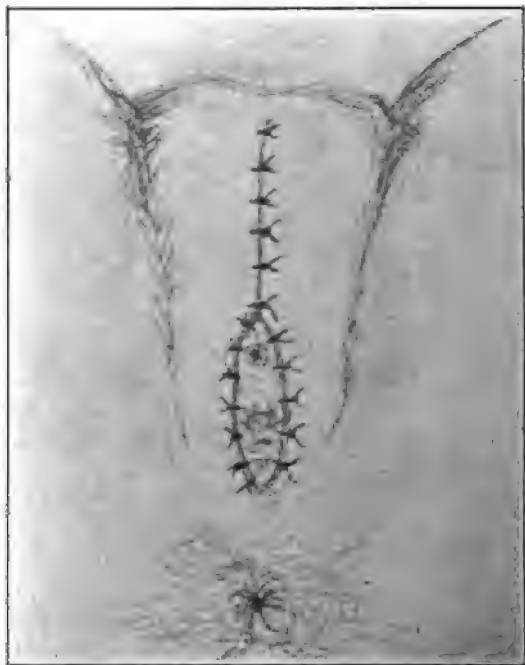


Fig. V. Operation completed. Edges of incisions closed by silk-worm-gut sutures.

the parts healed kindly by granulation. The patient left the hospital August 27.

Microscopic examination of the growth shows it to consist of islands of squamous epithelium, having a marked tendency to cornification with the formation of large numbers of epithelial pearls. About the nests of epithelial cells is a marked small cell infiltration extending to some distance beyond. In the overlying epidermis the rete Malpighi are much elongated and branched. The secondary growth resembles the primary, except that the cell nests are more numerous and show less tendency to cornification. The small cell infiltration is also much less than in the primary.

Diagnosis, squamous cell carcinoma of the vulva. I have been unable to ascertain the subsequent history of the patient, but as the disease was much more advanced than in the first case, the presumption is that there was a return.

CASE III.—Mrs. F. (Gynecologic case number 154), married,



Fig. VI., Case 3. Carcinoma of the clitoris, left labium majus and minus. Right labium minus swollen and excoriated by contact with the growth.

age fifty-four, was referred April 10, 1902, to the gynecologic service of the University of Michigan Hospital by Dr. Williams, of Bangor, Michigan. The patient had had four children. The family history was negative and the patient's health had been good up to the time of the present trouble. She had passed through

the menopause ten years before. Six months before admission the patient first noticed a troublesome itching along the inside of the left thigh. At the end of a month, as the symptoms were becoming worse, she consulted a physician who treated her for an abscess. Six weeks before entrance, this supposed abscess was lanced, but with no benefit, as the itching and burning increased and finally were replaced by a distinct pain in this region.

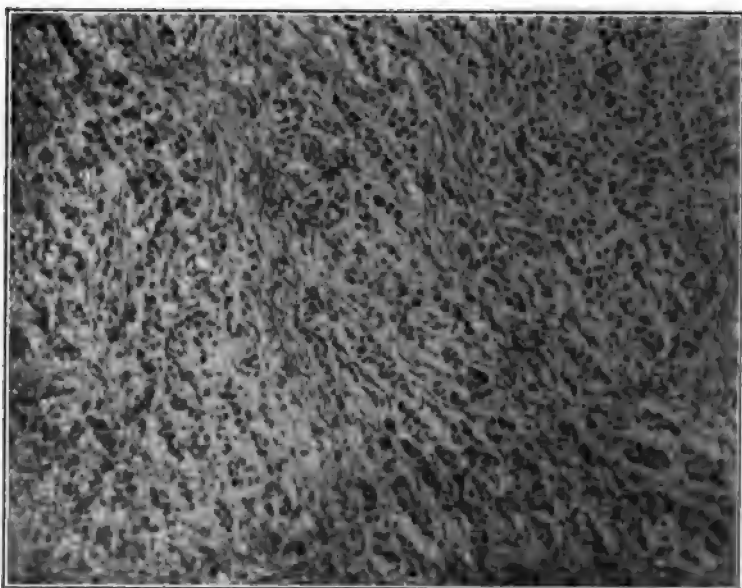


Fig. VII, Case 3. Carcinoma of vulva. X80. Anastomosing cords and nests of epithelial cells infiltrating adjacent tissue and showing no tendency to cornification.

Examination showed the upper portion of the left labium majus and minus to be the seat of an ulcerated fungoid mass with an excavated indurated center and edges. Its length was 4 centimeters, its width 2 centimeters. The surface of this ulcer was covered with a dirty, grayish white purulent discharge. The mass involved the clitoris, labium majus and minus. It was movable and not attached, apparently to the underlying tissues. The right labium minus was excoriated by the sloughing mass, but its surface was soft, not indurated, and apparently not the seat of a secondary growth. There was no involvement of the urinary

meatus, the edge of the growth being $1\frac{1}{4}$ centimeters away. The inguinal glands could not be palpated.

Operation March 11, 1902. The growth was seared thoroughly

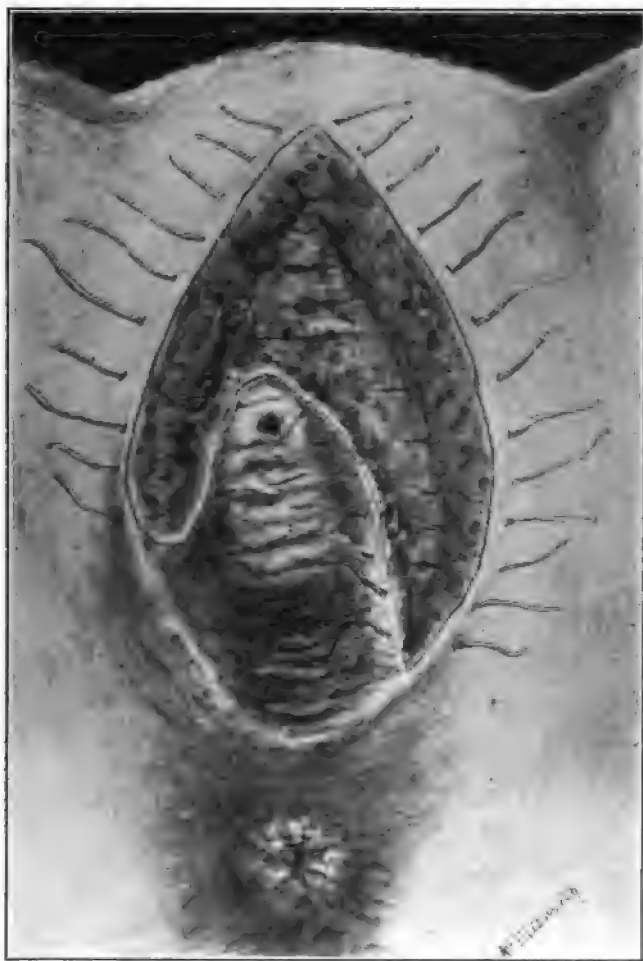


Fig. VIII, Case 3. Elliptical incision, including clitoris and portions of labia majora and minora. Silkwormgut suture in place.

with the actual cautery and its surface well soaked with 1-500 bichloride solution. The growth was then removed by the same operative procedure as was employed in the second case with the exception that no catgut sutures were used and the lower portions of the labia majora and minora were not removed.

Microscopic examination. Extending from the ulcerated surface are narrow anastomosing cords of epithelial cells. These are separated by varying amounts of loose connective tissue, much of which is embryonic in character. In other fields the epithelial



Fig. IX, Case 3. Wound closed by silk wormgut suture.

cells are diffusely infiltrating the underlying tissue showing only here and there strands of connective tissue, containing blood vessels. The greater part of the section shows no tendency whatever to cornification except in one field where there is a partial formation of a few epithelial pearls. In the unaffected portion

along the border of the growth is marked small cell infiltration with increase in the size and number of the blood vessels. Further towards the center, the small cell infiltration is localized about the smaller vessels and lymphatic. The tumor cells show great irregularity in size and shape, both as regards their nuclei



Fig. X, Case 4. Ulcerative form of carcinoma of vulva, involving both labia majora.

and protoplasm. The nuclei are, as a rule, large, vesicular, hyperchromatic and irregular in form. Mitotic figures are abundant, many of them being very atypical. In the lymphatic spaces of the unaffected portion along the border may be seen single epithelial cells, also small nests of three to five or more. The con-

nective tissue about the growth is edematous throughout, the blood vessels congested and in some places there is the formation of numerous new capillaries. The inguinal glands removed later show metastases from the primary growth; the cells having the same general characteristics. In one place the cells had broken through the capsule and infiltrated the overlying dermis.

Diagnosis. Carcinoma of the vulva, simplex in type, showing but little tendency to cornification. The cells show active proliferation and beginning metastases *via* lymphatics.

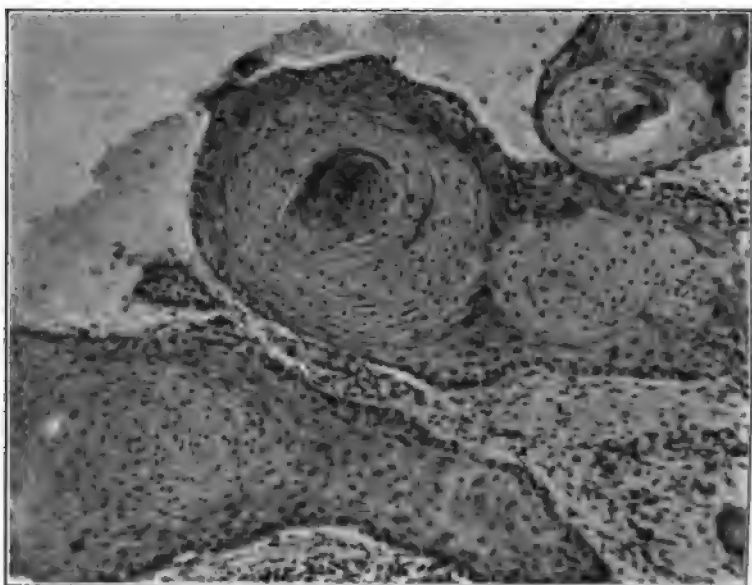


Fig. XI, Case 4. Carcinoma of vulva. X80. Nests of epithelial cells from border of growth, showing marked tendency to cornification with formation of pearls.

The wound healed by first intention and the patient left the hospital three weeks after the operation. She re-entered the hospital four months later for a return of the disease in the left inguinal region. She noticed a swelling here three months after her operation, but ascribed it to a blow she received in this region. The "bunch" grew rapidly until now it is the size of an egg. There is considerable pain, especially when the patient is on her feet. She has lost considerable flesh the past month.

Examination at this time showed no local return of the dis-

ease. Except for absence of clitoris and vestibule, it would at first glance be difficult to distinguish between this and a normal vulvar orifice. In the left inguinal region is a hard, indurated swelling, extending from the spine of the pubes to within three inches of the anterior superior spine of the ilium. Towards the median line from Poupart's ligament the swelling is hard and non-sensitive; below Poupart's ligament there is a red, sensitive, elastic and fluctuating area.

Secondary operation August 8, 1902. Extensive removal of lymphatics. The latter in places were greatly enlarged and broken down. The wound healed by first intention, but the areas contiguous to the line of incision remained red and sensitive. Later, this took on more active growth. The X-ray was tried but with no benefit. The patient returned home and died from the extension of the disease, November 27, 1902.

CASE IV.—Mrs. F. (Gynecologic number 438), married, age forty-three, was referred to the University of Michigan Hospital February 23, 1903, by Drs. Mater and Young of South Haven, Michigan. The patient has had one child at whose birth she was badly lacerated. She has been in fair health up to 17 months ago when she noticed for the first time two small "pimples" on the left portion of the external genitals. They looked like blisters. As they grew larger they ran together to form a raw surface, which smarted severely. This patch looked like raw meat and exuded clear fluid. For the past three months white patches have formed on the sore. At present it is very tender and bleeds easily and causes patient a great deal of distress and uneasiness, even keeping her awake nights.

Examination. Extending from the center of the left labium majus across the fourchette and for about one centimeter upwards on the left labium majus is an ulcerated growth with slightly raised and indurated edges. Its total length is five centimeters, its greatest width two centimeters. Its surface is covered with a grayish white film through which there appear here and there small bright red areas. The growth appears quite superficial, the induration extending to a depth of not more than one centimeter. The clitoris and labium minus are quite free and apparently normal. The inguinal glands could not be palpated.

Operation March 6, 1903. The operation was begun by the removal of the lymphatics from both inguinal regions. The ulcerated surface was then thoroughly cleansed with peroxide of hydrogen and touched with the actual cautery. The growth was

removed by an operation similar to that employed in Case III. There was a slight suppuration in the upper portion of the vulvar wound, otherwise the convalescence was uninterrupted and the patient left the hospital three weeks after the operation.

Microscopic examination. The surface of the growth is ulcerated, the epithelium wanting and the whole covered by leucocytes, red blood cells, fibrin and large numbers of microorganisms. Extending for a well-defined distance into the subcutaneous tissue are large numbers of epithelioid cells arranged in nests and masses with connective tissue between. The cells show a marked tendency to cornification with the formation of numerous epithelial pearls. These nuclei are large and vesicular and show well-marked nucleoli. In the mesoplastic tissue surrounding the cell nests are enormous numbers of eosinophile cells, particularly at the lateral borders of the growth. These cells have from one to three nuclei, the parts connected usually by a thread of nuclear material. In the same regions are found a few small round cells though not to any marked extent. In the tissue between the nests of cells are found large numbers of mast cells and considerable mucous degeneration. The growth has very sharp boundaries with no metastases in the immediate lymphatics. The lymph glands from the inguinal region showed no metastases, although serial sections were made of every gland removed.

Diagnosis. Squamous cell carcinoma of vulva showing much cornification.

Frequency. It is acknowledged generally that primary carcinoma of the vulva is a rare disease. Yet the statistics of Gurlt and Gönner show the disease to be more frequent than one would suppose. Gurlt estimated that in 10 per cent of all cases of carcinoma in the female, the seat of the disease was the vulva. Gönner from a statistical study of carcinoma cases in the gynecologic clinic in Basel, comes to the conclusion that of cancers of the female generative tract 5 per cent are situated on the vulva. It is difficult to reconcile these estimates with the experience of some of our American gynecologists. Noble reported two cases of epithelioma of the vulva before the College of Physicians in 1900. He refers to a similar report made by Hirst before the same Society a few years before, and although most of the operating gynecologists in Philadelphia were present at the meeting not one had ever seen a case of this disease. In the same discussion Dr. Beyea made the statement that of all the cancer cases

admitted to the University of Pennsylvania and Gynecean Hospitals during a period of six years there had been only one case of carcinoma of the vulva.

Age. There seems to be a predisposition for carcinoma of the vulva to attack old women. The average age is higher than with carcinoma of other parts of the genital tract. Winckel's statistics regarding the age at which carcinoma of the vulva appears, show 32.2 per cent between the years 50 and 60, while 25.8 per cent were between 60 and 70. It must not be forgotten, however, that in a certain proportion of cases (9.7 per cent Winckel) the disease may appear during the decade from 30 to 40. West reports one case in a woman of 31.

In my own series it will be noticed that the ages are distributed between two decades, forty to fifty and fifty to sixty. The youngest was forty-three and the oldest eighty-four.

Seat of the Disease. The location of the malignant growth was practically the same in three of the cases reported (I, II, III), viz.: to the left or right of the clitoris and a little below that organ. In Case III the clitoris was involved in the disease. In the other two cases it was unaffected. The sulcus between the labia majora and minora a little below the clitoris seems to be a favorite location of the epithelial growth. Cases are reported, however, where the starting point was in almost every portion of the external genitals. The urinary meatus is rarely the seat of the primary disease.

The situation of the ulceration in Case IV was peculiar and suggested at first the possibility of lupus. Starting on one labium majus it swept around the perineum in the form of a crescent and nearly reached the starting point level on the right labium majus.

Initial Symptoms. In three of the cases, intense pruritus was the first symptom of any importance. In each case the patient voluntarily spoke of this symptom. Pain did not seem to be an early symptom in Cases I, II, III, but was very marked in Case IV. Here it was caused probably by the peculiar situation of the ulcer, which was more exposed to irritation than where the growths are located higher. Burning, smarting pain on micturition was also a prominent symptom in this case.

Different Types of the Disease. Cases III and IV evidently represent two distinct types of carcinoma, both clinically and microscopically. Case III represents the active form of the disease. A few months after its appearance on the left labium majus the growth had ulcerated and spread to the clitoris and had

involved the inguinal glands early, as the disease recurred there after the radical removal of the growth. The microscope showed the cells actively proliferating. For the most part there was no tendency towards cornification. Case IV is an example of the opposite type of the disease. The patient had had the disease for some 17 months and while extensive, locally, the inguinal glands were not enlarged. Microscopically it was seen to be a typical squamous cell carcinoma, with a marked tendency towards the formation of epithelial pearls and cornification. Careful serial sections of the inguinal glands failed to reveal any evidence of cancer.

Metastases. I believe it will depend largely upon the type of the particular growth under consideration whether we may expect involvement of the inguinal glands. That they are not involved always is shown by the case just reported. Veit quotes Ingermann-Amitin as reporting a similar case, although Veit's own cases all showed glandular involvement. In 23 cases collected by Schwarts, 11 had enlarged inguinal glands, yet in only 5 of these latter cases did the microscope show the presence of carcinoma. The difficulty lies in our inability to determine in what particular case the disease has not spread by way of the lymphatics, hence, just as in cancer of the breast, we are driven to the removal of the inguinal glands, whenever we aim at a radical cure. The glands should be removed first so as not to contaminate the operative field by the discharge from the ulcerating mass below. The glands in both inguinal regions should be removed because it is impossible to state positively that the disease has not involved the opposite side of the vulvar cleft.

This brings up the question of contact metastases. In Case III the lesion involved the left labia and clitoris. The right labium minus was excoriated and softened by contact with the oozing surface of the growth but apparently not secondarily involved. Yet in a similar case reported by Kelly where only one side was removed, the disease returned later in the opposite excoriated and softened labium.

Operation. In the presence of one such reported case, any operation aiming to cure radically must insure the complete removal of both labia majora and minora and clitoris. The incisions must be elliptical and start well above the base of the clitoris. They must meet below half way between the anus and fourchette. A strip of mucosa must be left around the meatus above when that orifice is not involved in the disease. The hem-

orrhage is free but easily controlled; especially would I urge the cauterization of the ulcerated surface before incision into healthy surfaces. The parts are easily brought together by interrupted sutures.

Results. If carcinoma of the vulva can be seen and treated early enough, good results can be obtained. Veit quotes Schwartz as having 10 permanent recoveries out of 23 cases. While this may be overstating the case, somewhat, it is unquestionably true that there is much more hope of cure in carcinoma of the vulva after the radical operation, than after the most radical operations for carcinoma of the uterus.

DR. PHILANDER A. HARRIS, of Paterson, N. J., said that he felt his results in regard to operation for cancer of the uterus were not as favorable as those of Dr. Reamy, and while he did not want to take the position, which had been assumed by some, that every case was a failure, he felt that it was a difficult field in which to accomplish much. However, one of the worst cases of cancer of the uterus he had encountered, not involving the vagina, was operated on in 1896, and remained perfectly well to this time. In his whole list of cases he had but three or four where cancer had been present, and the patient had outlived a period of more than three or four years.

As to cancer of the vulva, referred to by Dr. Peterson, he had encountered but one case of cancer of the external genitalia. This occurred in an old woman, seventy years of age. A thorough operation was performed. She enjoyed a respite of a little less than two years, after which there were centers of infection in the pelvis, later the inguinal glands became implicated, and she died from the disease in less than two and a half years after the operation.

DR. CHARLES P. NOBLE, of Philadelphia, Pennsylvania, said, with reference to carcinoma of the cervix, the results, he thought, had not been as good as those in cases of cancer of the body of the uterus. Still, so far as his experience went, he was glad to say that he had had a certain percentage of cures. He had knowledge of two cases that had remained well for from fifteen to eighteen years, which were considered at the time inoperable. These cases were treated by chloride of zinc, and had remained well up to this time. It was true the cure in such cases might be considered worse than the disease, because both had extensive vesico-vaginal and recto-vaginal fistulæ as the result of the use of chloride of zinc, although they had passed the stage of operability in the sense of hysterectomy. As to hysterectomy for cancer, he could not state the exact percentage of cures, but approximately it was about ten per cent of the hysterectomies he had done for cancer of the cervix, taking five years as the period of estimated cure. One of these was also a case which he considered inoperable, and be-

yond the hope of cure at the time the operation was done. He thought it might be interesting to relate that case. It was a case in the family of a physician, and the operation was done at his urgency to avoid the disagreeable discharges incident to the development of cancer of the cervix. He attempted to do an abdominal hysterectomy, and just about the time that all of the ligatures were tied, when he was about to cut through into the vagina, the patient collapsed on the table. She recovered, and the problem of what to do with the cancer of the cervix still remained. She had a small vagina, and he thought the best thing was to burn the cancer out with cautery. He did so, and burnt a hole in the bladder. Later he closed up this vesical hole. It was seven years since the operation was done, and the patient had remained well.

So far as carcinoma of the external genitals was concerned, he recalled four cases. Of this number, three were dead. One was evidently hopeless at the time of the operation. Indeed, he only removed the disease to get rid of the discharges. The last one was a case of carcinoma of the clitoris which had remained well for a year and a half. In this case he did what he thought was the proper operation in all cases, namely, to remove the entire external genitals, slit up the groin on each side, and removed the inguinal glands. This patient had remained well, but the others were dead.

DR. J. WESLEY BOVÉE, of Washington, D. C., said that he had had no cases of carcinoma of the vulva in which he saw the patients sufficiently early to cause him to feel justified in following any operative procedure other than cauterization. He was very glad that Dr. Peterson had had some cases early.

As to the treatment of cancer of the uterus, and the results, he had seen a few cases in which he believed a cure was effected.

He said that in his paper on uretero-cystotomy, which he was going to read at a subsequent session, he was going to report the case of a woman upon whom he operated in 1898, in which there was a cancerous mass in the broad ligament surrounding the ureter to the extent of dilating it considerably. This led him to excise the lower portion of the ureter, and to do a uretero-cystotomy. The woman was in good health at present. He saw her recently, when he was called to see her daughter in consultation. At the time he operated on her, he did not think she would be alive at the end of two years. In cancer of the uterus, the earlier the disease was seen the more justifiable was the radical procedure.

He had noticed in the successful treatment of cancer that nearly all of the Fellows had said that they had cauterized their cases; that even in those cases which they did not expect to recover they used the cautery and were surprised to see that they had recovered. This kept fresh in mind the work that Dr. Byrne did and advocated. He called attention to the instrument devised by Dr. Downes, which he was using almost exclusively in abdominal surgery. There was a chance to apply it in radical operations for cancer of the uterus. He really believed that from its use gynec-

cologists were going to get more recoveries from cancer than they had in the past, and he hoped all would be able in a few years to report cures of as long standing as Dr. Reamy had been able to do.

DR. I. S. STONE, of Washington, D. C., spoke of the wife of a physician who was operated on in 1891 for carcinoma. The patient had consulted Dr. Thomas and Dr. Emmet, as well as physicians in Philadelphia. The case was a pronounced one of cancer. Vaginal hysterectomy was done, and the woman had remained well.

In regard to cauterization, he thought Dr. Van de Warker ought to have a tablet in the Hall of Fame, because the cauterization treatment had prolonged the lives of so many women, and had saved them from distressing symptoms. He thought a great many women had been cured by this method. It was constantly coming up in his experience that cases which were considered inoperable were now living two and three, or even four, years after cauterization. He did not think any of the Fellows kept sufficiently accurate reports of their cases. Only two years ago he cauterized such a case in his hospital, and sent the woman home to live perhaps six months. He gave her a thorough cauterization, but was sorry to say there was a fistula at the base of the bladder. The other day he was called by telephone to see Mrs. —, and to his surprise found that the woman was living and apparently well. She wanted to know what could be done for that fistula.

DR. MATTHEW D. MANN, of Buffalo, N. Y., said it seemed rather curious that some of the cases that had been most unpromising had given the best results, and that there seemed to be something in the theory of Dr. Byrne in regard to the cautery. The best result he ever saw occurred in his practice many years ago, where the cervix had been amputated by the galvano-cautery wire by Peaslee. It was done eighteen years before the time he saw the woman. The woman had been perfectly well and healthy for eighteen years. The disease then returned in the stump. He scraped it out, cauterized it with chloride of zinc, and the woman went for two years without recurrence. Finally, recurrence took place, and she died from it.

He thought as good results as he had had in cancer of the cervix were in a case which he operated on seven or eight years ago. He started in to do a vaginal hysterectomy, but found the uterus so adherent that he could not get it out. Thinking the disease was far advanced, he opened the abdomen, did a high amputation, and the woman was well to-day, after eight years. He had heard from her within a comparatively short time. These cases which were so bad and so unpromising did recover, and ought to give gynecologists great encouragement.

He had not used the actual cautery or galvano-cautery very much, but the evidence in its favor was so rapidly accumulating, that members of the profession ought to give it a more extended trial, certainly if they placed any confidence in the statements of

Byrne, and they ought to do so, because he was eminently an honest man, and a keen observer. There was undoubtedly great good accomplished by the cautery, and it ought not to be neglected as it had been.

In regard to cancer of the vulva, he could only remember to have seen three cases, one of them a good while ago, and past operation. One occurred in the last year. In this case the growth involved the whole mons veneris and entire vulva, extending down on to the perineum. He scraped it, and cut it away as well as he could with sharp spoon and scissors, then subjected the woman to the X-ray. He kept her in the hospital for a number of months, during which time she improved very much, but the growth started again, made rapid progress, and he sent her home to die. She was experimented on with antitoxin, which was prepared in the cancer laboratory, but grew worse under it, and the disease advanced more rapidly than it did before she had it.

The other case was under his care now, and was such as that described by Dr. Peterson. He amputated the vulva, sewed it up, got union by primary intention, and then subjected the parts to the X-ray. It was now three months since the operation was performed, with no sign of recurrence, and the woman felt perfectly well. The parts were soft. He intended to keep her on the X-ray treatment for weeks or months, hoping in this way to ward off any recurrence.

DR. PETERSON asked whether Dr. Mann had taken out the glands.

DR. MANN replied that he had not, as they were not enlarged. He said the patient was quite an old woman, and he did not want to prolong the operation too much.

In regard to the treatment of cancer, he was surprised that no one in the discussion had mentioned the use of the X-ray. He had been using it a great deal, but as yet he had not found any rule by which he could tell whether the X-ray was going to do any good or not. In some cases it did great good. The results were encouraging; the disease was stayed; pain was relieved; discharges and hemorrhages were stopped, and patients, on the whole, were much better. In some cases there was entire arrest of the disease; in others it seemed to spread, without any effect from the treatment, and the results in these were discouraging. At the same time, he believed the X-ray was an agent of great power, and ought to be tried quite extensively before it is cast aside. It would certainly relieve many of the symptoms, if it did not effect a cure.

DR. E. W. CUSHING, of Boston, Massachusetts, reported two cases of cancer of the vulva that he had operated on, but in both of them the disease had returned.

Relative to cancer of the cervix and the uterus, he mentioned cases upon which he had operated as far back as 1888, and they were well and alive to-day. There was no doubt as to the diagnosis in them, and some of the worst had recovered entirely, while

in others, in which the disease appeared to be comparatively benign, recurrence had taken place.

He did not think sufficient attention was given to the danger of infecting raw surfaces, and with the open lymphatics by the cancerous infection. He thought that in a great many cases recurrence of the disease was due very largely to lack of thoroughness in operating. For some years it was his practice to open the abdomen, to loosen everything, tie off the broad ligaments (?), going clear down to the vagina, then closing the abdomen, finishing from below, when the uterus could be pulled down, and dissection made of the few remaining tissues, with a minimum danger of infection. By doing this, one had an opportunity to see if any of the glands were involved. In many cases of cancer, there was no means of knowing whether the infection would spread, or whether the glands were involved. If the glands and fat were all removed in this operation, the same principle was applied as in the use of the X-ray. No surgeon would think he had done his duty by removing a breast without going into the axilla, and in the same manner no gynecologist would think of having done his duty in a case of cancer of the uterus until he had split up the perineum and had seen what the condition was there. By the method he had mentioned the uterus could be pulled down and removed, if necessary, without danger of infecting raw surfaces. Where this could not be done, it should not be classed as a complete operation, but as a palliative measure.

DR. REAMY, in closing the discussion on his part, said it was conceded everywhere that cancer of the body of the uterus, in a large percentage of cases, was susceptible of cure by sufficiently radical and skilful operation. But it was stated in a discussion last year before the Society by a very distinguished member, and his statement was to a large extent agreed to, that statistics sustained the proposition that cancer of the cervix was not curable. The cervix seemed to be a favorite field for the primary invasion of carcinoma of the human body. After the discussion at Chicago on this subject, he thought he would review it and look over the literature, as he had made up his mind that such a contribution was wanted to elucidate this phase of the question, as to the curability of cases of cancer of the cervix. If one could establish beyond controversy that primary cancer of the cervix was limited to this organ, or supposed to be by the clinical history of the case subsequently, and that the case was cured by operative measures, then it certainly was a contribution to the question of the curability of the disease, on the one hand, and threw light on the etiology of the disease. Since we did not know definitely the cause of cancer, we might get some light and we might at least find room in which to argue. If it was found that permanent recovery followed the removal of the disease, in the absence of better knowledge we might limit our investigations and not be speculating in too many fields. If removal of the tissues in which the local manifestation occurs was followed by a permanent cure, even in a

small percentage of cases, it settled the question in that particular, that the disease was primarily local and was so at the time of the operation.

With reference to Dr. Peterson's paper, he thought it was an admirable one. According to Pozzi, the involvement of the lymphatic glands had been largely overrated in these investigations. He made serial sections of his cases of primary cancer of the vulvar, where the disease had existed sixteen months, and during that time he had established beyond controversy that there was no involvement of the glands, or of the region roundabout, showing there could be active manifestations of the disease in tissues without involvement, so far as investigations could determine, of the glands.

DR. PETERSON, in closing the discussion, emphasized a point brought out by Dr. Reamy, namely, that not always in cases of carcinoma of the vulva were the lymphatics involved. He thought that his conclusions were justified that in carcinoma of the cervix and in carcinoma of the vulva we had two distinct classes of cases, and thinking along this line might explain many of the failures to cure, and also the curability of certain cases that appeared hopeless at the time of operation. There was one class of cases in which the disease was very limited, the area not being larger than a finger-nail, and yet after the removal of the entire uterus the disease recurred within a few months, and the patient died. In another class of cases, although there was considerable involvement of either the cervix or the vulva, operation proved successful. In his cases serial sections were made of the lymphatics, but no metastases were found. It would seem from this that therein lay the explanation that we were dealing with two distinct kinds of cancer. For instance, take the experience all had had with carcinoma of the breast, the situation was parallel. He remembered distinctly of removing once from both breasts a nodule of carcinoma not larger than the end of his thumb. He removed all the glands in the axilla; these glands contained carcinoma nests, and while the disease had only existed to that extent, yet cases had been reported where there was no question as to the diagnosis of the disease in the breast, and the glands had not been removed, but the patients lived year after year. So he thought we must be dealing with the same class of cases there, and this should give gynecologists some hope in the operative treatment of carcinoma.

He said that his friend, Dr. Ries, was an enthusiast, and believed in the removal of the glands in every case where it was possible. The burden of proof rested upon Dr. Ries and his followers, and those who are working along these lines. It was obligatory upon Dr. Ries and others to prove that in every case of carcinoma the patient should be subjected to this most dangerous operation, and this was one of the reasons why he presented the paper.

SHOULD THE UTERUS BE REMOVED WHEN THE OVARIES AND TUBES
ARE REMOVED IN CASES OF DOUBLE PYOSALPINX, WHEN OP-
ERATING EITHER THROUGH THE ABDOMEN
OR THE VAGINA?

A symposium on this subject was opened by a paper contributed by Dr. Andrew F. Currier, of New York City, which was read by the Secretary, in the absence of the author.

If this was proposed as a matter of routine, the writer would reply emphatically no. If it was proposed as an expedient when the uterus itself was extensively diseased, the author would say, yes. It might also be removed if it had been greatly injured in the extrication of the appendages, or if it should seem to be required as a means of controlling troublesome hemorrhage. To remove the uterus in a young woman might possibly produce unfavorable mental effect as a consequence, near or remote. To remove the uterus from one near, at or past the menopause, might add an element of risk to the operation. To remove the uterus might weaken the pelvic roof, and might introduce an element of danger from enterocele. To remove the uterus unnecessarily was bad morally, for it tended to establish the impression of the unimportance of the organ, and that it might be unhesitatingly extirpated by any one who had the requisite skill. To remove the uterus on the ground that it might possibly be the seat of malignant disease in the future was assuming more than the clinical history taught, in the great majority of cases, and was, moreover, a reproach to surgery, making it destructive instead of conservative.

"SHOULD THE UTERUS BE REMOVED WHEN OPERATING
FOR DOUBLE PYOSALPINX, EITHER FROM
ABOVE OR BELOW?"

BY

PHILANDER A. HARRIS.
Paterson, New Jersey.

BEFORE making answer to this question it is necessary for us to meet upon common ground, and admit the following with reference to the more important phenomena, any one or many of which enter into the history of every case of double pyosalpinx.

That all women who have double pyosalpinx are sterile, and that most of them will remain so in spite of treatment or operation, that they suffer more or less from pelvic pains, not only in

connection with movements of the body, but independently of them. The item of pain is manifest in all gradations of severity. Some suffer so slightly, both as regards the item of pain, and in other respects as to show neither appreciable disability nor impairment of general health, while with others pain is rarely absent, not only preventing the patient from pursuing her usual vocation but confining her to the couch or bed for months or years.

An increased temperature, headaches, constipation, and emaciation, characterize a large proportion of cases. I remember one case to have carried a temperature from one to two degrees above normal daily for one year, and until operated upon.

Neither fever, headaches nor emaciation are common to all cases. I have repeatedly removed double pus tubes on account of pain complained of in which there had been almost entire absence of fever or wasting of the body.

Menorrhagia with clots and a lengthening of the menstrual period is a common accompaniment of pus tubes. Such patients frequently tell us that they menstruate ahead of time.

Dysmenorrhea is present as a result of infection in about two-thirds of all the cases. If menstruation was painful before the existence of pus tubes, the painful period is more prolonged, and the suffering far more pronounced.

Leucorrhea is generally very profuse in the beginning of uterine and tubal infection. It is nearly always present in a degree, but the cases are very numerous in which it almost ceases or is not complained of, and disappears for weeks or months while the disease is progressive in the tubes and ovaries.

As a consequence of double pyosalpinx, both sexual inclination and capacity for participation are greatly diminished. In isolated cases, inclination for coition is markedly increased. Far more often, however, it is repressed, while the pain caused by the sexual act disinclines, if it does not forbid, participation.

I am sure that we must accept the above as the more important complaints and accompaniments of pyosalpinx.

I have made no reference to the symptoms arising from gonorrheal infection in the urethra, bladder and the glands of Bartholin, for the reason, that inflammation of these parts will not be particularly influenced by the operations which terminate suppuration in the reproductive organs.

My first experience in operating for the cure of pus tubes consisted in passing the hand through the suprapubic incision, and grasping an ovary and the companion tube, forming a pedicle.

and removing the ovary, and as much of the tube as possible. Many, but not nearly all the cases thus operated upon were cured. A very considerable percentage of the cases were only temporarily relieved.

This rather large percentage of failure to cure was doubtless due to a continuance and extension of the disease in the proximal ends of the tubes which were always left behind.

When I had performed quite enough of such operations to become convinced that the "Tait" operation was far from satisfactory as a curative measure, I became as some of you did, intensely interested in vaginal hysterectomy as practised by Jacobs, Ségund, and others, for the cure of pelvic suppurations.

I shortly so perfected my work in that direction that the operation became easy to do, and I, for a time, practically ceased operation for pus tubes from above.

When as a matter of routine practice, I had almost abandoned the suprapubic route and operation for the infrapubic one, I became rapidly cognizant of the fact that vaginal hysterectomy for pus tubes had many drawbacks. As time went on, I found that although suppuration, discomfort and disability had generally been recovered from, the patients, and occasionally their husbands, were making new complaints. Continuing somewhat longer to practice vaginal hysterectomy, for I regarded it as more curative of the symptoms complained of, than the operation which I had done from above, my attention was directed to an improved operation which consisted in exsecting the entire tube with its lumen to the uterine mucosa, closing the chasm with catgut sutures, and leaving behind every ovary which was not abscessed, or otherwise diseased.

So that for the past four years, my operations for diseased tubes have consisted principally of bilateral exsection of the tubes, consequently leaving both ovaries, one ovary or a part of an ovary and the maintenance of menstruation in at least 95 per cent of all the cases operated upon. I should here state, that after my return to the suprapubic route and the particular operation just referred to, I performed a few operations upon what were considered more conservative lines, in which I exsected one tube and amputated or incised and disinfected the other tube.

I operated upon a few women by performing bilateral amputation of the tubes, indulging them with the hope of a possibility of pregnancy, one case was successful in that particular. Fortunately (as I now believe) my work in that so-called conservative

line was rather promptly checked, and I have in my possession, and will here present to you photographs illustrating two of these cases, which with the other unsatisfactory cases in interest, led to my abandonment of the alleged conservative method at a comparatively early stage of its invasion in my practice.

In the past four and a half years I have performed about 150 abdominal sections in which both tubes were excised in every instance. I am able to note that most of the patients were cured of all the pelvic pains and discomforts complained of after the occurrence of the tubal infection, that 95 per cent continued to menstruate, while probably 90 per cent returned to the menstrual habit which characterized menstruation prior to the infection. If menstruation was painless prior to the uterine and tubal infection, simple excision of the diseased tubes cured the dysmenorrhea which arose from such infection.

If the dysmenorrhea was a regular part of menstruation prior to the uterine and tubal infection, excision of both pus tubes had little if any effect upon such primary dysmenorrhea. It quite frequently happened that patients gave a history of having suffered from painful menstruation prior to the occurrence of infection. In such cases the character of the pain remaining after operation, its duration and the time of its occurrence usually exemplified the habit of the individual prior to the infection. Excision of both pus tubes in such cases, usually extinguished or terminated the special qualities of the dysmenorrhea which had made their appearance after the infection, leaving the patient with a dysmenorrhea of the same character as she had had prior to the infection.

The occurrence of full term utero-gestation as you know, often cures primary dysmenorrhea, but bilateral excision of pus tubes has little if any influence in the direction of a cure of primary dysmenorrhea, or the dysmenorrhea which developed at puberty and was permanent, and pronounced, and continued for years prior to the infection of uterus and tubes.

I long since adopted the practice of particularly recording in the history of every woman suffering from dysmenorrhea or salpingitis every detail pertaining to the pains preceding, attending or immediately following menstruation. With the history thus taken, I know in almost every instance whether dysmenorrhea is primary or acquired. If acquired it can generally be traced to gonorrheal or other infection.

When a patient presents with double pus tubes and with a his-

tory of primary dysmenorrhea, I am particular to tell her that the proper removal of her pus tubes can not be relied upon to cure her of her dysmenorrhea which clearly existed for years prior to the occurrence of her infection.

I take the following to be the most common order of events in infection of the reproductive organs:

First: Infection of the uterus.

Second: Infection of one or both tubes.

Third: Infection of one or both ovaries, by which is meant the development of a pyogenic sac in and from the ovary.

If we will but bear in mind, that the uterine mucosa which furnishes so fertile a field for the growth of the gonococcus, consists of one form of structure, that the musculature of the uterus is of quite different structure, that the Fallopian tube with its corrugated lining is like a long sinus with a very small lumen at its origin in the uterus, and with structure and form peculiar to itself, and finally that the ovary is characterized both in structure and function by a most decided personality of its own, we must share the belief, that the dissimilarity in form, structure, and function of these intrapelvic parts, not only should, but does render them severally different from one another in the matter of their behavior when invaded by a particular infection.

I believe that a degree of endometritis is the common, although not constant accompaniment of pus tubes. It often greatly abates, or entirely disappears months or even years before the termination of suppuration in the tubes.

Both in relation to the personal comfort of the patient, and its effect upon her general health, endometritis must not only be regarded as the minor pathological condition, but it usually owes its maintenance to the major pathological state, which in this discussion we are characterizing as pus tubes.

Although the uterus first partakes of the infection, it afterward appears more as a concomitant participant in the inflammation of the Fallopian tubes, and is generally recovered from after their excision.

Of the reproductive organs in the female pelvis the Fallopian tubes are the most natural rendezvous of pelvic suppuration. Neither the ovaries nor the uterus are in nearly the same degree to be regarded as habitats of inflammation, the tubes being the easiest and most chronic victims. After passing through the uterus, it is in the tubes that inflammation continues more or less active for months, years, or even decades. In many instances this inflamma-

tion is dormant for weeks, months or years, yet capable of being aroused to pronounced activity, not only as a consequence of fresh infection, but independently of it.

The more grave, the more distressing, and the more persistent symptoms, referable to pelvic inflammation do not arise from endometritis, but from tubal disease.

When the fallopian tube suppurates, nature naturally and promptly seals the ostium abdominalæ with whatever structures it may happen to be in contact. Consequently, in operating we very often find the fimbriæ adherent to the ovary. If we separate the adhesions, pus usually emerges from the ostium abdominalæ.

How often have we broken these adhesions from the ovaries which were themselves free from inflammation or abscess. Very often, however, have we found the ovary with such environment itself the seat of a pyogenic sac.

The bursting of a graafian follicle within the attachment of a suppurating tube, is probably the most reasonable explanation for the occurrence of infection in the ovary itself. The ovary must therefore be regarded as a comparatively unwilling participant in the inflammations which find themselves so much at home in the Fallopian tubes.

The ovary is certainly not nearly so natural a habitat of inflammation as the Fallopian tube. Incision and drainage of ovarian abscesses through the vagina are far more certain to terminate suppuration in the ovary, than the same procedure when applied for the treatment of tubal suppuration.

Of these parts, uterus, tubes, or ovaries, I believe that diseased fallopian tubes are by all odds the chief factors in the production of the discomfort, pain and disability for which patients seek relief, and that genuine double pyosalpinx must be thoroughly exsected to arrest the disease. In a goodly number of cases, one ovary may also have to be taken, in a few instances, possibly three or five per cent, all of both ovaries must be removed. In isolated instances the uterus should also be taken. The tubercular uterus should doubtless be removed in every instance where the diagnosis is established prior to operation.

If, while we are exsecting both tubes to the ovarian mucosa, we leave an abscessed ovary in situ, the ovary will continue to harass the patient. But with both tubes exsected, and the abscessed ovary remaining, we have but to incise the abscessed ovary per vaginam and drain it for a while to effect a cure. If with a diseased tube in situ, we were to simply incise an abscessed ovary

per vaginal section, and drain it for a while, we would cure the single abscess of the ovary, but with the remaining adherent diseased tube the symptoms arising therefrom would continue while the ovary would be opened to possibilities of reinfection from the tube.

Incision and drainage of pus tubes per vaginam fail to cure a very considerable portion of all diseased tubes for the simple reason, that the diseased tube or sinus if you please, is left behind for the active continuance of the inflammation.

If, when we exsect both tubes we simply open the abscessed ovary, and disinfect its pyogenic cavity with pure carbolic acid the inflammation of the ovary is often arrested, and both the ovary and the item of menstruation are spared to the individual. Should the inflammation, however, be of a tubercular character, less favorable results would accrue from such conservative treatment.

The chronically inflamed fallopian tubes are to be classified as closed or generally closed sinuses with more or less sacculation:

When suppuration has become well established in both tubes their exsection is the only operation which can be relied upon to effect a cure. By exsection is meant, the removal of the lumen of the tube to the uterine mucosa.

Less radical operations, as hemisection and disinfection of the ampullæ and larger portions of the tube, probing and washing of the tube, and amputation of distal portions of pus tubes, are incomplete operations, and are proportionately unsuccessful in that they leave behind a diseased process, which not only continues to exist, but is productive of discomforts and other ill consequences to a greater or less degree.

With the feeling that the promoters and advocates of such incomplete operations for the cure of *genuine* bilateral pyosalpinx have not yet established proof of the great curative value which they have claimed for them, I am compelled to assert that the very considerable percentage of failures to cure the patient of the more pronounced discomforts of her disease has not nearly been compensated for by an occasional pregnancy in the large class of cases distinctly characterized as a condition of double pyosalpinx. That the price of a slight hope for pregnancy which has been offered to a large class of such patients has been a large percentage of failure to afford permanent relief from the distressing symptoms complained of before the performance of the so-called conservative operations.

All of our earlier operations upon the tubes were incomplete,

and how many of them were also unsuccessful because they were simple amputations and not exsections of the tubes. I believe, it is as unsurgical to leave one-quarter or one-third of a diseased fallopian tube as it would be to leave a similar portion of a diseased appendix, vermiformis.

The percentage of failures to relieve the patient of the distressing symptoms complained of is so considerable that it entirely overshadows in importance the single advantage of the so-called conservative operations, which have but one item of commendation, and that is the meagre hope of a cure of the sterility which double pyosalpinx occasions.

If in operating for double pyosalpinx, we propose in any instance to do less than exsect both tubes to the uterine mucosa, we should tell the patient that such an operation is an incomplete one, that it will not deprive her of her extremely slight hope of pregnancy, but will carry with it a very considerable probability of failure to restore her to a condition of pelvic comfort and perfect health.

With cure of pyosalpinx by extirpation of the uterus and ovaries, patients sacrifice every advantage accruing from the mere presence of the ovaries, and in addition thereto more or less abatement of, and in many instances, complete loss of the sexual instinct for the unexpired term of life.

A woman's well being, her most noble desires, ambitions, and aspirations, and the nutrition of her body, are largely affected and influenced, directed, controlled and sustained by the instinctive promptings of her sexual system. Remove if you will her uterus and ovaries, as is proposed and practiced for the cure of double pyosalpinx and you will seriously change her life in many important respects. Such change often works great injury to the well being of the woman. The injury may fall lightly upon some, but it is sure to weigh very heavily upon many others.

Although sterile, the loss of menstruation alone is prejudicial to the patient's well being. This is especially true of the younger classes. The mere knowledge of the fact that menstruation has forever ceased brings upon many a strong feeling of personal inferiority to other women. Add to this the inevitable train of symptoms which characterize the menopause and appreciate if you will, the responsibility we may have incurred by moving the change of life backward, ten, fifteen, twenty, thirty or more years for the patient.

The surgically produced menopause may be less prolonged and

less distressing than the physiologic one. However that may be, we can never be blamed for that which nature brings to our patient, but she will surely hold the surgeon to account for the one which his knife brings upon her, and while so doing, she will minimize the importance of the disease which so radical an operation may have cured her of.

I believe, we should accept as correct the oft-repeated assertion that every surgical operator, when consulted by a patient should keep in view the fact that his duty lies in the direction of affording the greatest possible degree of relief from symptoms complained of, with the least mutilation of the body, and with the least possible interference with, or arrest of its bodily functions.

By a variety of surgical procedures, extending over a period of fifteen years or more, I feel sure that we have arrived at a point where we can so well measure the discomforts and disability chargeable to the respective anatomical parts affected, that we no longer need sacrifice all these parts, when only one form of anatomical structure is seriously at fault.

The suppurating fallopian tubes are the particular anatomical structures at fault, and I should advise that as a matter of routine we excise them, leaving the uterus and ovaries with the patient.

If an ovary is abscessed, remove it. If both ovaries are abscessed and the patient far from the expected menopause, remove the larger abscessed ovary, but incise the pyogenic sac of the smaller one, disinfect it with carbolic acid, and leave it in situ.

If the patient is very near or at the menopause, there is of course little need of trying to save suppurating ovaries.

Exsection of the uterus for double pyosalpinx is understood to take also the tubes and the ovaries. So radical an operation undoubtedly affords the greatest possible relief from the symptoms complained of by the patients. But I feel that the price of removal of the uterus in every case of double pyosalpinx may be partly estimated by the following results:

First, loss of menstruation in every instance.

Second, partial or complete extinction of the sexual quality in a large proportion of the cases, together with incomplete physical capacity for sexual participation.

Third, injury to the nervous system of the patient, arising from her knowledge and appreciation that she has been prematurely and possibly unnecessarily deprived of these and other qualities, which render her physically and to a certain extent morally inferior to other women.

SHOULD THE UTERUS BE REMOVED WHEN THE OVARIES
AND TUBES ARE REMOVED IN CASES OF DOUBLE
PYOSALPINX, WHEN OPERATING EITHER
THROUGH THE ABDOMEN OR
THE VAGINA.

BY

I. S. STONE, M.D.,
Washington, D. C.

It has been shown conclusively that the pus found in most cases of pyosalpinx is either sterile or contains no actively infectious micro-organisms. The average case comes to the operating table with limitation of the infectious process. It is beyond question that gonorrhea is responsible for the vast majority of these pus cases. The mucous lining of the uterus transmits the microbe and bears the brunt of the attack, rather than the muscular structure of the uterus. The narrow canal through the cornuæ of the uterus is intended as an anatomical barrier against the introduction of infection into the Fallopian tube and thence to the peritoneum. It does not suffice, however, to prevent the entrance of micro-organisms, while on the other hand it almost invariably prevents the various collections of pus, serum, blood, etc., usually found in the tube, from escaping into the uterus even when the distal extremity of the tube is closed and the distention of the tube very great.

The tube would, therefore, be functionally useless and possibly dangerous even if the pus were permitted to escape without danger or inconvenience to the patient. The tube may under these circumstances require removal because structurally destroyed. The presence of pus in a location where it cannot escape safely without operation, necessitates and justifies operation. Such good and excellent reasons cannot in our opinion be given when it is proposed to remove the uterus in addition to the diseased annexa. It is unwise and unsurgical to remove any organ unless permanently and incurably disabled. Hysterectomy requires additional time for its performance, and is unnecessary unless it can be shown definitely that the organ is the seat of deep-seated abscess or equally dangerous conditions which continue to endanger the patient's life and cause persistent and annoying symptoms.

That serious or dangerous conditions frequently result from retention of the uterus the writer is unwilling to admit, as several years of experience have furnished abundant evidence to the contrary. But he is quite willing to acquiesce in the statement that certain annoying discharges from the uterus may continue and demand treatment. The treatment of these persistent cases of endometritis may require much time and possibly anesthesia and thorough curettement and cauterization of the cavity of the uterus, but even this we believe better than hysterectomy. The latter operation is, however, quite easy by way of the vagina if needed as a *dernier ressort*.

After salpingectomy it has been our custom for several years to excise the cornuæ of the uterus.

[Vide paper read in Section on Obstetrics and Diseases of Women, American Med. Assn., Atlanta, May 5th to 8th, 1895, "How to Remove Pus Tubes Without Rupture."]

The uterus is then permanently closed against further introduction of fluids, etc., into the peritoneal cavity and its interior may be treated by curettage, cauterization, or irrigation, without fear of any accident whatever.

In our opinion this method and its results very satisfactorily disposes of whatever argument may be brought forward by the invariable hysterectomist, and we need furnish no additional proof further than to mention the great popularity of this method among surgeons generally.

ADDITIONAL REASONS FOR PRESERVING THE UTERUS.

The uterus assists in maintaining the adjoining organs in normal position. We find it occasionally convenient and desirable to anchor the sterile uterus to the abdominal wall, *suspensio-uteri*, or "fixation," as deemed best.

We see no advantage in hysterectomy for the purpose of drainage for we can secure better drainage through the cul-de-sac, posterior to the cervix, because this leaves no collection possible while the patient is in the dorsal position, as in this way we reach the lowest point of the peritoneal pouch.

The writer has had no death result from bowel obstruction, or in any way due to having left the uterus in position since 1895.

This patient had acute sepsis and we used the old *en masse* ligature. At the autopsy a knuckle of bowel was found firmly adherent to the stump of the right cornu, and had caused fatal

bowel obstruction. At that time we discontinued the use of *en masse* ligatures and have since had no death due to a similar accident.

Our entire experience shows but one case of malignant disease occurring in a patient having previously had double salpingo oophorectomy. This lady had her first operation October 5, 1893, and returned January 18, 1896, over three years later, to have vaginal hysterectomy for sarcoma. Her first operation was for ovarian abscess connecting with the bowel and her uterus did not appear to be abnormal in any respect. She recovered quickly and satisfactorily and is now in perfect health.

We have never observed a carcinoma in a patient having had double salpingo oophorectomy.

Finally, we are not convinced that there is immunity against psychical disturbances in women who submit to pan hysterectomy, and we leave the uterus when possible for the same reason that we leave a healthy ovary in hysterectomy for myoma.

DR. MATTHEW D. MANN, of Buffalo, N. Y., read a paper on

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The author stated that the almost sole cause of pus tubes is gonorrhea, although there might be a mixed infection. The uterus was usually infected, and might make trouble afterwards, and be the cause of spreading the infection. The uterus was no longer of any use. Menstruation did not always stop after the removal of the tubes and ovaries, and if it remained, it might become excessive and cause trouble. It might become the seat of cancerous disease. In acute infection removal of the uterus afforded the best means of securing drainage. The results by the vaginal route, where the uterus was always removed, warranted its removal by the abdominal route. The woman's sexual life was unaffected by the removal of the uterus. The additional time taken for its removal was more than counterbalanced by the securing of good drainage.

In a small proportion of cases (the author could not give accurate statistics) menstruation continued for a time, a few years perhaps, after removal of both tubes and ovaries. Menstruation in an affected uterus was rarely normal, often profuse and painful, and a source of much trouble. He had been obliged to curette the uterus later, for the relief of such symptoms, and all must admit that such a condition was very hard to cure, and that even repeated

curettings often failed. The removal of the uterus in such cases effectually stopped menstruation, and did away with the necessity of any further treatment. Perhaps the strongest argument in favor of the removal of the uterus was to be found in cases where the infection was still acute. It was undoubtedly true that in the large majority of cases of suppuration in the pelvis, the pus was sterile—in other words, that the germs were dead before we came to the operation. Were this not so, unquestionably a much larger mortality would be the result in operating on pus tubes. Where the pus was still in the infectious stage, where the virulence of the germs was very considerable, the best results were undoubtedly obtained by the use of drainage.

One of the principal arguments used in favor of leaving the uterus was that the sexual life of the woman was destroyed by its removal. This he denied entirely. He did not believe that the uterus itself had anything to do with the sexual function. It was merely a passage-way and a nest for the growing fetus. The ovaries were undoubtedly the true sexual organs, and the sexual sense depended entirely on their presence or absence. If the ovaries could be preserved in any case of serious suppuration of the tubes in a woman under forty, he believed that they should be left. In that case the uterus should be left, too, if possible. But those were not the cases under discussion. The question presupposed the entire removal of both tubes and ovaries, and where they were removed he believed that the sexual sense would eventually disappear, as it did in most women after the menopause. But the presence or absence of the uterus would have nothing to do with this. Women generally understood the advantages of preserving the ovaries and were not affected mentally by being told that the uterus had to be removed as well as the appendages. He had never seen a woman worry over the removal of her uterus, though he had many times seen them affected by being told that their ovaries were out. In other words, the author believed that the uterus was a very unimportant organ as compared with the ovaries, and that its presence or absence was a matter of very little import.

The atrophy of the vagina which was sometimes seen to follow the removal of the uterus and appendages, he believed to be due, not to the removal of the uterus, but to the establishment of the menopause by the removal of the ovaries. In many women atrophy of the vagina was observed to follow the change of life. The uterus was affected in the same atrophic process. Both were due to the menopause, and the shrinkage of the vagina occurred, not because the uterus had atrophied, but because the physiological function had ceased, and atrophy had become the normal result.

In closing, the author quoted Henrotin as saying: "In any operation for septic diseases of the female generative organs, which demands the removal of the tubes and ovaries, hysterectomy should also be performed, unless there are plain contraindications forbidding it."

The author concluded that this dictum was correct when it was written, and he did not believe that anything had occurred since to challenge its truth.

DR. HENRY C. COE, of New York City, contributed a paper on

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He said that the uterus was by no means always diseased in these cases, at least the trouble could be remedied by preliminary curettement. The ovaries might be healthy, one or both, even though bound down by adhesions, and if preserved, menstruation continued and the patient was saved the severe climacteric disturbances observed in young women, as well as the mental distress. Illustrative cases were given. The chances of pregnancy were not considered here, as they were remote. In most cases ample drainage could be secured without removing the uterus. The argument that the uterus might be infected subsequently was not sound, as infection was not transmitted through the tubes, and could be treated by curettement, etc. Cases were cited in point. In spite of recent favorable statistics, hysterectomy added to the immediate and subsequent risks of the operation. The atrophy of the vagina in young married women was a real objection to hysterectomy, and might lead to marital unhappiness. But, after all, the decision as to the removal of the uterus with tubes turned on the condition of the organ at the time of operation. If thoroughly softened and diseased, the seat of fibroid, or extensively lacerated at the time of operation, there was no question as to the advisability of its removal. The wishes of the patient should influence the surgeon. Many women preferred to take the risk of a secondary laparotomy or vaginal hysterectomy rather than to have everything removed at the first operation.

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DR. CHARLES P. NOBLE, of Philadelphia, read a paper on this subject. As a contribution to the discussion concerning the advisability of removing the uterus when it is necessary to remove both uterine appendages for pyosalpinx, he offered a summary of his results in dealing with pus cases.

Of hysterectomy for circumscribed pus limited to the uterine appendages, that is, pyosalpinx or abscess of the ovary, the author reported fifty-eight cases, with one death, a mortality of 1.7 per cent.

Of hysterectomy for intraperitoneal abscess in addition to pus in the uterine appendages, he reported six cases, with four deaths, a mortality of $66\frac{2}{3}$ per cent. Of appendages removed for circumscribed pus contained in the tube or ovary, that is, pyosalpinx or abscess of the ovary, he reported 76 cases, with 7 deaths, a mortality of 9.2 per cent. Of appendages removed for circumscribed pus contained in a tube or ovary since January 1, 1895, he reported 36 cases, with two deaths, a mortality of 5.5 per cent. Of appendages removed for intraperitoneal abscess in addition to pus in the ovary and tube he detailed 22 cases, with 5 deaths, a mortality of 22.7 per cent. Incision and drainage for pelvic suppuration, 58 cases, with 1 death, a mortality of 1.7 per cent.

The conclusions to be drawn from these figures are very plain and definite. During the same period there were 58 cases of pyosalpinx and abscess of the ovary treated by hysterectomy, with a mortality of 1, being 1.7 per cent; and 36 cases treated by the removal of the appendages with a mortality of 2, or 5.5 per cent. These cases being operated upon at the same time, it cannot be claimed that increasing skill due to experience is the explanation of the better results obtained by hysterectomy. The argument in favor of hysterectomy is even more marked if the total experience is taken; that is, to contrast 58 cases of hysterectomy with 1 death, with 76 cases of removal of the appendages with 7 deaths, a mortality of 1.7 per cent as contrasted with 9.2 per cent. This contrast is not fair, however, as the larger number of cases includes all of the early work of the author, in which the technique was not so well developed and in which skill was being acquired. Nevertheless, the advantages in results are so patent that it seems to him that there can be no question as to the superiority of hysterectomy over the removal of the appendages when the pus is limited to the ovary and tube.

Taking up the complicated cases, in which the pus tube or abscess of the ovary is complicated by intraperitoneal suppuration, the results are very different. Six cases have been operated upon by hysterectomy, with 4 deaths, a mortality of $66\frac{2}{3}$ per cent; and 22 cases have been operated upon by the removal of one or both appendages, with 5 deaths, a mortality of 22.7 per cent. On the other hand 58 cases belonging to the same group have been operated upon by incision and drainage with 1 death, a mortality of 1.7 per cent. The question is not one between hysterectomy and the removal of the appendages, but is one between a radical operation and the conservative operation of incision and drainage. The difference in results is so absolutely in favor of the conservative operation that this undoubtedly should have the preference. The superiority of hysterectomy over the removal of the uterine appendages, or pyosalpinx and abscess of the ovary, consists not only in its lower mortality, but in its lower morbidity. When a hysterectomy is done, the four arterial trunks supplying the pelvis are ligated, so that the control of oozing is much better. When the appendages are removed and the uterus left, the posterior surface

of the broad ligament and more or less of Douglas' pouch is left raw and oozing. It is difficult to control the oozing points by ligature, and the result is that drainage is more frequently required, or, on the other hand, intraperitoneal exudate more frequently results. When hysterectomy is practiced, this oozing surface is largely removed, and what is left of it is covered over by the comparatively healthy peritoneum from the anterior wall of the broad ligament and bladder.

PRESIDENT JANVRIEN stated that, before the general discussion on this symposium was begun, he desired to call attention to the fact that there was a difference between the questions, as propounded by him on January 1st, in the original circular letter, which called simply for discussion upon the point as to whether the uterus should be removed in cases of double pyosalpinx, when operating through the abdomen or the vagina. In the program there had been inserted the words, "when the ovaries and tubes are removed." He said several of the papers had been prepared in accordance with the first heading, and others upon the second. He thought it would be best to cut out the insertion "when the ovaries and tubes are removed," before the papers were read, but he was convinced that it placed some of the authors in a bad position; therefore, he wished to recall that and submit the following as the subjects to be recorded in the Transactions:

1. Should the uterus be removed in cases of double pyosalpinx when operating either through the abdomen or the vagina?
2. Should the uterus be removed, when the ovaries and tubes are removed, in cases of double pyosalpinx, when operating either through the abdomen or the vagina?

He thought by using these two headings it would do justice to every essayist and discussor, and that when the Transactions were published, no one would be placed in a bad light.

On motion of Dr. Goffe, each paper was ordered published with its individual title, as arranged by the author.

DR. SETH C. GORDON, of Portland, Maine, in opening the general discussion on the symposium, said he wished to speak only on the topic announced in the program, namely, as to whether, when both ovaries and tubes were removed, the uterus should be removed. It seemed to him that there were three or four points brought up that ought to have been wiped out of discussion years ago. When a man talked about sexuality being impaired by the removal of the uterus, it was old foggy talk. He thought the experience of every man, who had been doing hysterectomy for the last twenty years, more or less, if he had asked his patients what the sexual condition was afterwards, he would find that in seventy-five per cent of the cases it had been improved, in twenty per cent it had been unchanged, while perhaps in five per cent it had been abated. He fully agreed with Dr. Noble in the statement that in his own patients, whom he had questioned, there had been no

impairment or change in the sexual function, except, perhaps, a decided increase in it. The idea of leaving a perfectly useless, functionless organ, after the ovaries and tubes had been removed, was an absurdity. In the majority of cases it was the source of infection, and in cases of gonorrheal infection it should not be left. By retaining the uterus, a thickened mucous membrane was left which was liable to constant leucorrheal discharge; it might be a constant source of irritation; an organ was left which had two arteries pumping into it, and simply made it a focus of congestion, pain and suffering.

Referring to the paper of Dr. Harris, he noticed that in almost every case he had to do a secondary operation. For what? For troubles which were left, because he did not do the first operation as completely and thoroughly as he ought to have done. That is my solution of the secondary operation he had to do in his cases. He had seen the evil results of cases of so-called conservative work, where the tubes and ovaries had been removed and the uterus left. He had been arguing the point for ten years of removing the uterus whenever the ovaries and tubes were taken out, and as yet no one had convinced him of the importance of retaining the uterus after the other organs had been removed.

He disagreed with Dr. Mann that the ovaries were the seat of sexual function. He did not believe it, because in the cases of complete hysterectomy he had done, where everything was then removed, the sexual function had been increased rather than diminished, and it had continued for years, to his knowledge, by asking patients about it, so that the ovaries had very little to do, in his opinion, with sexuality. It depended upon some other factor. While he did not desire to touch upon the matter of conservative surgery, a subject which had been handled so well and so ably by others, he desired to enter his protest against the conservation of this useless, functionless organ, the uterus, which was simply for the purpose of carrying a child, and nothing else. When left, it became the source of congestion, and until it was removed the patient would not be relieved of symptoms.

DR. BACHE MCE. EMMET, of New York City, said that this question was under discussion in Washington about six years ago, and opinions were at that time divided, as now. There was some feeling of conservatism expressed at the time in regard to retaining the uterus after the ovaries and tubes had been removed. Since that time he had seen some reasons to modify his opinions expressed then, but not *in toto*. In some cases, where the tubes and ovaries had been removed, the uterus did not give any trouble for years. It had remained well, and not only had the uterus remained well, but a part of the tube, which had not been removed, had remained innocuous. He did not wish to convey the idea that the pus in the tube was harmless and sterile, but that portion of the tube which had not been involved in the disease, and which had not been rendered useless and impervious, was not absolutely without some vitality, and might exert some influence on menstru-

ation. In some cases, where the uterus was left, atrophy occurred, without any of the periodical congestion further than a re-attempt at menstruation, and in some instances menstruation would go on although the ovaries had been removed. In other instances where the ovaries had been removed, and part of a tube taken out, or simply an ovary or a part of an ovary removed on one side, with a piece of tube on the other side, impregnation took place. For instance, in a case cited by Dr. Coe, only a piece of stump was left and a piece of ovary on the other side, yet the woman became impregnated. Where the uterus was diseased, he thought all would agree in advocating its removal. As to the fear of ultimate cancer of the uterus, it was so rare that it should not enter into the case. In women, with pendulous abdomens, who had some enteroptosis, he thought the uterus was helpful in forming a basic support to the belly, in this way relieving the sense of weight which was experienced by many women whose uteri had been removed.

DR. J. WESLEY BOVÉE, of Washington, D. C., said, as to the matter of removal of the uterus, when both appendages were taken out, a great deal depended upon the condition of that organ, its outer surface, as well as the muscle and mucous membrane. He had found, in most of his work, in which he removed the uterus, or, rather, the body of the uterus, because he rarely removed the cervix in these cases, in amputating at about the internal os, occasion to remove it more on account of adhesions of raw surfaces to the peritoneal covering, and the fear of subsequent adhesions if it was left in place, and not so much from infection, although there were a few cases in which it seemed absolutely necessary, from pus formation in the wall of it, or extreme enlargement from edema, and so forth, incident to the infectious process. He found the additional traumatism incident to the removal of the body of the uterus was of very little importance, and drainage subsequent to operation was facilitated, and particularly if the posterior portion of the cervix was split through from the cervical canal into the vagina, and the posterior portion of the uterus split with the vagina just behind the cervix, thus making an opportunity for vaginal drainage from above. One disadvantage attending the removal of the cervix was the shortening of the vagina.

DR. THADDEUS A. REAMY, of Cincinnati, Ohio, said he was very much surprised to hear the statement made by Dr. Mann that the ovaries were the seat of sexual desire. Every one knew that the ovaries were the organs of generation, but that sexual desire resided in them, or that they promoted sexual desire, except so far as physiological harmony was necessary while they were in a state of activity, he did not believe. Every woman learned sooner or later that they were organs of generation, and were concerned in the function of procreation, or in giving birth to children, presided over by that higher physical and moral influence, love of children, loyalty to husband, the establishment of family integrity in society, etc. Each of these elements entered into the whole question, and

the consent of the unmarried young woman to marry the man of her choice, who accepted the man of her heart, was influenced by this condition. Without any question, sexual instinct, sexual desire and gratification largely depended upon the action of the brain, and that sexual capacity was in the lumbar cord and not in the ovaries.

DR. A. PALMER DUDLEY, of New York City, stated that the subject under discussion was pretty well threshed out several years ago, and it was only the revival of the old question, but it was just as fruitful for discussion to-day as it was then. He was surprised to hear one of his old teachers make the statements that he had. He called attention to the statement made by one gentleman that the seat of sexual desire in woman was not located in the ovaries; that the tubes had nothing to do with it, and the uterus was not in it. If this was true, in God's name, where does it come from? From the lips, the nipple, the clitoris, or base of the brain? Was it the combined action of the entire organism? It would seem so, in his judgment.

With reference to hysterectomy for pyosalpinx or double pyosalpinx, it was the consensus of opinion of the Society, and from statistics that would soon be published, that in cases of double pyosalpinx it was prudent to remove the uterus, providing double pyosalpinx was of septic origin. But there were extenuating circumstances even in this, which must be the age of the patient, her social surroundings, her future ability to earn her living, her domestic relations, and all the psychical states attendant upon these different conditions.

As to the removal of the uterus in cases of double pyosalpinx, granting the organ to be septic, would it render the woman immune from re-attacks of gonorrhea? Could she not have gonorrheal vaginitis, gonorrheal urethritis, or gonorrheal rectitis, as he had seen in many cases? Therefore, if the body of the uterus could be cleansed and put in a healthy state, why should the uterus be ablated under these conditions? If one studied the dynamics of the pelvis of woman, he would find that the utero-sacral, the utero-vesical ligaments, played an important part in the action of the diaphragm, as did the different muscular structures. If the uterus was removed *in toto*, connections were severed and muscles shortened and united in scar tissue. By so doing, the diaphragmatic action of the pelvis was materially injured. The one point he desired to call attention to was, that if the uterus played no part in the sexual function of woman, why did Cazeaux wait thirty-odd years to record cases of orgasm under his own eye, with speculum *in situ*, in hysterical women? Why did he record such cases as that and give the facts to the profession if the uterus played no part? He saw with his own eye the spasmodic action of the cervical portion of the uterus under sexual excitement.

This was not a myth, but a matter of record. He said there were cases of non-septic pyosalpinx in young girls due to cold; they had never been infected with gonorrhea; they had never had

abortion, and this brought him to the point of questioning one statement which one of the essayists had made, and it was this: He would place the causes of pyosalpinx in all women, except the girls he spoke of, as, first, septic from abortion, and, second, due to gonorrhea. He did not worry about cases of gonorrheal pyosalpinx as much as he did about septic pyosalpinx. If one treated it and waited, the case would take care of itself, and later on one might save some of these cases. Dr. Harris, on the other hand, had taken a prudent stand when he urged the removal of the tubes *in toto* to the uterine mucosa, but there were extenuating circumstances which would cause every man to use his best judgment as to whether to resort to hysterectomy or not.

DR. ARTHUR W. JOHNSTONE, of Cincinnati, Ohio, said his experience coincided with nearly all that had been said by Dr. Mann. As long as the vagina or clitoris was left untouched, the sexual functions would go on until the woman died of old age.

There was one allusion in Dr. Mann's paper, and in the others, to atrophy of the vagina following these removals. Some eight or ten years ago he read a paper before the Society on "Trachoma of the Genital Tract." It was known to many as kraurosis vulvæ, etc. There were, in his experience, about one or two per cent of the cases operated on, which showed this atrophy, but since his attention had been called to it in studying it from the standpoint that the oculist studies trachoma, it being an inflammation of the mucous membrane, he was satisfied it was a true mixed infection, which was closely analogous to granular eyelids. Since he had begun washing out the uterus and vagina in cases where the tubes had been removed, or where the uterus had to be removed, and having seen the crypts in the carunculæ myrtiformis, by thoroughly disinfecting and handling these cases in the same way that the oculist treats trachoma, he had seen no more cases of atrophy of the vagina.

DR. I. S. STONE, in closing the discussion on his part, said there were only two or three points concerning which he desired to speak. One was with reference to prolapse of the vagina. He understood from Dr. Noble that he had not seen such a case, but personally he had been unfortunate enough to see more than one, although he did not remember how many. There were two or three other members who had seen the same condition. He believed Dr. Gordon had had such a condition in his experience, as had also Dr. Dudley.

With reference to removing the uterus, one might as well talk about removing everything if he went into the abdomen. He did not approve of that sort of surgery. There were a large number of men who removed the appendix every time they had an opportunity when operating for other conditions, and he thought that tendency was growing.

DR. MANN, in closing the discussion on his part, said that Dr. Reamy and others had questioned his statement in regard to the ovaries having anything to do with the sexual sense. What he

meant was this: If the ovaries were removed in the case of a young girl, before the age of puberty, the sexual sense would never develop. One might take out the ovaries, the vagina, or any other organ he pleased, and it would develop just the same. Therefore, he said the ovaries were not the determining factor in the sexual sense or appetite, and that the removal of the uterus and other organs had absolutely nothing to do with it, and that the uterus might be removed without any change in that particular function.

There were a great many points taken up in the discussion with which he did not agree, but he expressed himself in his paper, and therefore would not say anything further.

DR. NOBLE, in closing the discussion on his part, said he understood Dr. Mann to say that most cases of pus tubes were due to gonorrhea. He agreed that gonorrhea was the most important factor in the causation of pus tubes, but that in Philadelphia the gonococcus did not appear to be quite so active as it was in Buffalo. He was sure, however, that there were a good many cases of pus tubes due to criminal abortions, where there was no reason to believe there was any gonorrhea. He had had a few cases of pus tubes after infection in child-bed. Even admitting that infection played a definite rôle in the causation of pus tubes, he also believed that in the septic cases, that is, in puerperal cases, drainage would effect a cure in many of them without removing any of the organs. He had drained many such cases and had never had to do a secondary operation. He did not believe in the radical operation in this class of cases. The reason he did supravaginal hysterectomy in some cases was because he secured better results. He had not tried the conservative operation in pus cases recently, but five or six years ago his results were so poor that he had done with the conservative operation. Conservative operation on the ovaries was a different matter.

He desired to say a word or two about the sexual function, which had attracted so much attention, and reiterated what he had repeatedly said. He had asked every woman, whose ovaries he had removed, every time he saw her until he had asked over six hundred of them, and he had never had one tell him that it lessened her sexual desire, but that in many of them sexual desire was increased. He believed that the gradual cessation of the sexual appetite, referred to by Dr. Mann, was due to increasing age and to the effects of age on the patient. He did not believe, when the ovaries were removed, that women lost their sexual appetite any sooner than in the natural course of events.

DR. HARRIS, in closing the discussion, said as to the item of change in the sexual appetite, that he had not asked six hundred women, from whom he had removed both ovaries and tubes, as to their sexual inclinations, and even if he had done so, he would not expect all of these women to be in the condition described by Dr. Noble, but he believed that he had asked perhaps sixty or more, and of that number a great many had assured him that the sexual inclination had abated. He found this out more by accident

than anything else. He agreed with Dr. Mann and others that the sexual inclination went with the sexual life of the woman, and that if the menopause was advanced ten, fifteen or twenty years, so much sooner would there be a loss of that quality in a considerable percentage of cases which belonged to woman.

While he regretted very much that the subject which was selected on January 1st was not entirely adhered to, yet he did not think it had done any special harm, considering the able manner in which it had been discussed. He had been led to write his paper in answer to the official question issued by the Council.

DR. J. WESLEY BOVÉE, of Washington, D. C., contributed a paper on

URETERO-CYSTOTOMY.

The author gave a history of uretero-cystotomy, pointed out the indications for the operation, discussed the diagnosis, routes and methods for operation, complications, technique, after-treatment, gave case histories, and the results.

DR. GEORGE H. NOBLE, of Atlanta, felt interested in this work, although his experience has been confined to some eight or ten cases. He wished to mention one or two points. The first was with reference to that in which the essayist spoke of loosening the kidney for the purpose of gaining an increase in the length of the ureter in order to make an anastomosis, that is, a bladder implantation when the ureter was cut too short. Quite recently, in a case of recurrent carcinoma after hysterectomy, where he ligated the internal iliacs, he resected the bladder and ureters and the upper portion of the vagina to a considerable extent, and in doing so cut the left ureter close to the bifurcation of the iliacs. He found, of course, the ureter would not reach the bladder, even though it was turned back and loosened from the transverse rami of the pubic bone. To gain a little length, he dissected the ureter up from the loose connective tissue in the peritoneum for some little distance, then, as the ureter was attached to the peritoneum, it did not come down. If the peritoneum held it back, if there was loose cellular tissue alone, it was an easy matter to draw it behind from the kidney. When one traced it above the pelvic brim, it would be found to be quite firmly attached to the peritoneum. After loosening the fatty tissue, he made a slit of two and a half inches on either side of the peritoneum, preferring not to disturb its relations, and he thought it was important to preserve the vascular supply as much as possible, and by making an incision two and a half inches in the peritoneum on either side of the ureter he secured a gain of one inch. Those who had done nephro-ureterectomy would find it an easy matter to dissect the ureter along the upper portion of the abdomen, that is, from the pelvic brim up, without injuring the surrounding tissues, and it was just as easy to dissect the ureter from below upward, from

the brim up, if an incision was made in the perineum. The dissection could be carried without any difficulty as high as the pelvis of the kidney, and by stripping the peritoneum there would be plenty of room for loosening the organ. But he had not attempted to go that far. With a two or three inch incision on either side, loosening the fatty tissue, there would be quite a gain in the descent of the uterus.

In reference to bladder drainage, he had found it important to put in a permanent catheter connected with a receptacle. In this way one prevented pressure, and there was much less liability to the formation of a fistulous tract. Should there be leakage and the fluid escape through the vagina, permanent drainage would close the fistula, provided the attachment to the bladder held. The most important point in vesical anastomosis was to fix the ureter in the bladder without tension. If there was tension, the suture would cut through and pull away. It should be fixed in the bladder with a suture that would hold it. The next step was to make a tight joint, but it was unnecessary to spend time in the insertion of numerous sutures around the end of the ureter. One could fold up the other side of the bladder in the form of a cuff and stitch it down with three or four sutures, making it sufficiently tight to serve the purpose if retention catgut was used.

DR. WILLIAM M. POLK, of New York city, said that the essayist did not go very much into the technique, therefore what he had to say would be largely from his own experience in dealing with these cases. The great difficulty about the operation was the fact that most of them were undertaken in the midst of an operation of magnitude, and therefore some little lack of precision existed in the attachment of the open ends of the ureter to each other or the bladder. All were agreed that if the ends of the ureter could be brought together, it was far better than implantation into the bladder. Bladder implantation, no matter how well done, would speedily lead to constriction at that end of the structure. He thought this would be the case pretty much in every instance if one waited long enough. End to end anastomosis would perhaps lead to a certain amount of constriction, but he questioned whether, in the long run, the degree of constriction would be as great as if the ureter was carried into the interior of the bladder itself. It was the simplest, quickest and best way of bringing about union of the two ends. He rather thought that the rule which was now being adopted in regard to union of the ends of the intestine in intestinal surgery held good here, that is, end to end junction and through and through suture gave the best results without attempting to do any of the refinements which were formerly considered to be so essential in the general union of the various coats of the mucous tract. A form of technique which could be adopted in these cases was the adaptation of the Maunsell method of juncture.

The results of these operations he thought could not be properly judged until seven or eight years had elapsed from the time

of the performance of the operation, and then there was every reason to believe, in consequence of the inevitable interference with the flow of urine, there must be changes in the kidney itself, which made the operation only a partial success, and it had occurred to everyone who had done operations upon these structures that injury to them should be considered as an essential part of the procedure and every conceivable method adopted to avoid infection.

DR. REUBEN PETERSON, of Ann Arbor, Michigan, said that all of these operations on the ureters had only been practiced for a few years, and any additional facts which might be elicited or accumulated, would prove advantageous. Dr. Bovée had said that the history of the operation of implantation of the ureter into the bladder gave a mortality of six per cent. The speaker was sorry to have to increase this mortality. He reported a death by the abdominal route, and the case showed in many particulars the difficulties that are met in such instances, so that he thought it would be well to report it. The woman had been operated on by him some months previously for an intraligamentous fibroid of the uterus, and although at the time he thought he had avoided the ureter, still subsequently it was shown that it had been injured or bruised during the operation, or that he had nicked it in cutting away the growth. At any rate, after the third or fourth day the woman passed urine by the vagina. Some months later he anastomosed the ureter with the bladder, going through the abdomen to do it. After opening the abdomen and proceeding to dissect up the ureter, he found an exceedingly curious condition. Besides the dilatation which had resulted from the stricture which had occurred low down in the pelvis, he found dense adhesions running from an inch and a half above the vagina to the lower part of the bladder upwards to the bifurcation. In order to get at the ureter at all he had to make an extensive dissection. He thought the bad result in the case was due to interfering with the blood supply.

He said very little was known as yet about the blood supply of the ureter from a practical standpoint. He could safely trace the ureter in this case after dissecting it up and implanting it into the bladder. It was a comparatively easy operation, especially for one who had done much ureteral work. The result showed that his confidence was misplaced. After putting the ureter in the bladder, he covered it with peritoneum, which was not particularly good, because he had injured it in making the dissection amongst adhesions. He was afraid to trace it altogether; he put a drain through down into the vagina, which began to leak on the second day, so that the woman developed septic symptoms and died presumably from peritonitis. Unfortunately, he was unable to secure an autopsy. This case illustrated the difficulty encountered in these cases, and he believed the surgeon should put the proposition to patients that secondary operations were attended with more or less danger, and then ask them if they wanted to undergo this additional risk.

DR. BOVÉE, in closing the discussion, said he did not have time to take up the technique of the operation in reading his paper, but he would refer briefly to it, inasmuch as Dr. Polk had called attention to it. There was in his mind one procedure which was better than others, and this procedure was one devised and advised by the investigators on animals in this work. These men planned to make an incision from the top plane through which the work was to be done, and into which the ureter was to be inserted. A second opening sufficiently large was to be made on the lateral surface of the bladder at the most convenient site into which the ureter was to be drawn. Different operators had used different methods in this work. They had varied the method in that direction, in that the ureter was drawn in there, then sutured in place. In this way the ureter, before being drawn in, was split, two flaps made, and the ends of these flaps sutured to the bladder wall at the proper distance from the opening through which the ureter penetrated, and the suture spread apart and fastened there, which held the ureter in place. It lessened tension on the sutures, which made a proper approximation of the bladder to the ureter to prevent leakage. In his mind this union should be made in an oblique direction, so as to imitate surgically as much as possible the methods of nature. This could be made with a portion of the bladder that could be reached in such a way as to permit the oblique method, and yet not cause a curvature or bending of the ureter at the point of junction with the bladder. Then the ends of the ureter could be fastened by the flap-splitting to the bladder a little beyond the lower end of the incision. The ureter was to go through into the bladder and travel along lengthwise in the bladder wall, to be fastened along its continuity. There would be a tendency to constriction, although in some cases there would be a tendency to dilatation if the ureter was divided. It was necessary to have this work covered by peritoneum. Even if the ureter was to be brought across the peritoneal cavity to make the junction, it ought to be covered with peritoneum brought over it, and the wall of the pelvis later, and drainage be instituted. Bladder drainage was necessary. This was a special point in the technique of the operation. There also ought to be intraperitoneal drainage if the operation had been made by the transperitoneal method. If it was done by the extraperitoneal method exclusively, then extraperitoneal drainage was all that was necessary; but extraperitoneal drainage was not sufficient if the operation had been made by crossing the peritoneal cavity. Bladder drainage was particularly important. Some of the patients would not retain the catheter while in the bladder, and one had to substitute frequent or interrupted emptying of the bladder for permanent catheterization. He found in two of his own cases he began this in one as early as the second day. Patients ought to pass urine from the urethra by the side of the catheter. In some cases, where this plan was followed, there was great traction on the end of the ureter to prevent separation of the bladder and ureter. Of course, the

shorter the ureter, the more tension there was, and therefore there was more liability to constriction by dragging the tissues apart, the ureter and bladder making the constriction. Some had used sutures brought through from the urethra, others had applied weights to make sufficient traction on the ureter until union occurred. He would carry the bladder well upward to get the ureter; it could be carried as far as the brim of the pelvis to meet the ureter. If this could not be done, a flap could be made from the bladder, as advised by Van Hook, but which had not been carried out on man. However, it seemed practical in making a portion of the ureter out of that, cutting a long slit flap from the bladder which was turned over and converted into the tube, the edges being sewed together, and then united to the lower end of the ureter.

He favored making short incisions along the ureter, such short slashes in plain areas of tissue as one would make to relieve tension instead of long incisions. But above the brim of the pelvis there was not so much necessity for that. The peritoneum was pulled down if the kidney was loosened, and by pulling down upon the ureter carefully one could draw it down without going through the peritoneum. One should cut through the connective tissue on the outer side, and not the serous coat itself.

NOTE ON THE OCCURRENCE OF GALLSTONES IN INSANE WOMEN.

BY

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Detroit.

THE theory that gallstone disease is more prevalent among certain classes and under certain environment should find corroborative evidence in the instance of the insane. The congregating of large numbers of patients in our state asylums inclines to bodily inactivity of the individual and thus favors the stagnation of the bile current, while a large proportion of the population of these institutions is incapacitated from continuous and energetic labor on account of the mental sickness with which the patients are afflicted. At the Eastern Michigan Asylum only forty-five per cent of the female inmates are regularly employed.

Moreover, if mental activity, whether normally or abnormally directed, together with sedentary habits, are further predisposing conditions to the formation of gallstones, as pointed out by Fre-

richs, and obesity and diet are also contributory, as mentioned by Harley, we have in the life history of the asylum patient a combination of those conditions which are supposed to be the most active causative factors in the production of biliary calculi.

Unfortunately for statistical purposes, while it is proved that the insane are peculiarly liable to cholelithiasis, symptoms of the disorder are rarely manifested during life, so that the frequency of the condition among this class of patients can only be determined by the findings after death.

During the past fifteen years hundreds of insane women have passed under the writer's observation, and yet in only three instances have gallstones been met with in the living subject.

Although, as just mentioned, it is generally assumed that gallstone disease is common in the insane, as far as I am aware no one in this country has as yet taken the trouble to ascertain the frequency of the disorder among the inmates of our institutions. In England, Beadles published a paper in 1892 dealing with the occurrence of gallstones in the insane, and in 1896, Simpson, of the West Riding Asylum, contributed an elaborate paper on the same subject, while in Germany, Riedel appears to be the only one who has undertaken systematic work along this line.

My own investigations, begun about five years ago, have been greatly handicapped and have proved far from satisfactory, on account of the difficulty in obtaining, from the family and friends of deceased patients, permission for holding postmortem examinations; superstition, indifference or fear of mutilation, in the minds of the middle and lower classes, overbalancing every argument that may be brought to bear. The obstacles opposed by ignorance to the advancement of knowledge have always proved a source of hindrance and delay in the acquisition of useful information, and satisfactory work in our state institutions cannot be carried out until legislative enactment places the bodies of those dying while under state charge in the control of the asylum authorities. It is no more than just that patients who have been under the expense of the state, perhaps for a long period of years, should, after death at least, furnish some compensation for their maintenance and care during life for the benefit of science and the living. On account of the limited material at my disposal at the present time, the following notes are offered merely as a slight contribution to the subject, preliminary to a more extended discussion at some future day.

From January, 1897, to January, 1903, a period of six years,

133 female patients died at the Eastern Michigan Asylum for the Insane. Of this number necropsies, in which the abdomen was opened, were made in 23 instances, 17.29 per cent. Gallstones were found in these twenty-three subjects six times, or in a little over twenty-six per cent of those examined. The ages of the patients varied between twenty-two and sixty-five years, five of the number being over thirty. Only two of the women had been pregnant, one having had two children, the other six. The deaths occurred in February, June, July, August, October and December, and were due to tuberculosis, infective cholangitis, ulcer of duodenum, carcinoma of liver, syphilis and nephritis.¹

Beadles found at autopsies performed at the Highgate Infirmary the presence of gallstones in from ten to twelve per cent of the cases examined; at the West Riding Asylum, Simpson places the percentage of gallstone disease at twenty per cent, while at post-mortems on female patients from the Jena Asylum, Riedel found biliary calculi present in eighteen per cent. Comparing my own observations with those of the investigators just mentioned, it appears that the frequency of gallstone disease in insane women at the Eastern Michigan Asylum is considerably in excess of that recorded for similar institutions in other countries, but it is quite possible that the difference in the prevalence of the condition is more apparent than real and that with a larger material the variance in numbers would not be as marked.

DR. PHILANDER A. HARRIS, of Paterson, N. J., read a paper on

EXCISION OF THE PROXIMAL ENDS OF THE FALLOPIAN TUBES AT
THEIR ORIGIN IN THE UTERUS, THE OPERATION OF CHOICE,
FOR THE EXTREMELY RARE CASES WHEREIN STERILITY
IS DESIRABLE.

This operative measure, he said, was to take the place of the Porro operation, to take the place of bilateral removal of the ovaries, and to take the place of bilateral incision of healthy tubes. Menstruation would not be sacrificed. Every advantage arising from retention of the ovaries would be preserved for the individual, excepting the single item of impregnation. Tubes thus disconnected from the uterus would probably remain immune from future gonorrheal infection of the endometrium. A patient thus sterilized could doubtless be cured of her sterility by implanta-

¹I am under obligation to Dr. Jason Morse, Assistant Superintendent Eastern Michigan Asylum, for much assistance in the way of statistical information.

tion of the tubes through the uterine fornix to the uterine cavity. While there were doubtless cases which were characterized by certain conditions of the body, mind or nervous system calling for the voluntary production of sterility, there must necessarily be a very limited field for the employment of this operation. If a case was to be surgically sterilized, it should be effected in such a manner that the patient and her friends might feel that she could be restored to fertility, should the pathological factors of her case so abate or disappear as to render impregnation and pregnancy permissible. No attempt was made to present the indications for an operation which produced sterility for temporary purposes, although such instances were believed to be within the range of possibility, and if so, they emphasized the advantage of doing the primary operation in the manner proposed.

DR. WILLIAM M. POLK, of New York city, said he would take the liberty of making a few comments on the paper of Dr. Harris. If he understood the matter correctly, the essayist had no clinical proof as to the efficacy of the operation proposed, and that it was a suggestion or proposition. He presumed that it was based upon the work which had been done upon other parts of the Fallopian tubes for the purpose of restoring their functional activity, so far as pregnancy was concerned, and, of course, the only difficulty which stood in the way of the realization of the anticipation was connected with the possibilities which might develop in connection with the cicatricial shrinkage of the uterine wall itself. Where the tube was operated on and turned loose, in the cavity of the peritoneum, one had to deal with possibilities of shrinkage of the connective tissue which surrounded it, and observation would seem to show that eversion of the mucous membrane was sufficient to counteract any possible constriction which might occur therefrom. But where one had to deal with a structure like the uterus, containing a large amount of connective tissue, and which had a tendency to produce contraction as a result of its attempt to restore itself to its normal condition, he had precisely the question introduced which was found in an attempt at anastomosis of similar tubes or structures to viscera throughout the body. This was the greatest objection, based, it is true, upon analogy, and it remained to be seen whether the thing could be carried out, whether the operation would meet with the difficulty he had suggested.

The question as to its efficacy in promoting sterility was one that was very readily answered in the affirmative, because the tube being treated in the manner suggested at once took it entirely out of line of any possible re-connection with the mucous membrane of the cornu as to render sterility as nearly certain as anything could be, and it was a great advantage which the essayist had suggested of leaving the organ practically intact.

The subject opened up a very important question which would have to be taken up by the Society some day in the near future, perhaps, and settled, and that is as to the effect upon ovulation of interference with the functions of the uterus and of the Fallopian

tubes. He thought it could be readily shown, which, of course, was an extreme proposition, that the removal of the uterus would inevitably lead to atrophy and disappearance of the ovaries as efficient parts of the economy.

As to the question of technique, which had been raised by Dr. Harris, as to the isolation of the tube, it was also one of importance. The procedure really was a very easy one, namely, the dissection of the tube from its bed in the cornu of the uterus, and certainly gave a very much better surgical result.

He hoped the members of the Society would consider the whole question of sterility and the means of meeting it, taking it up in all of its operative bearings, so that in the near future they would be able to deal with this all-important question from the practical standpoint of operation through the abdomen rather than confine themselves to operations that were expended purely upon the vagina, because there could be no question that a larger number of conditions dependent upon certain disorders could be reached only by anatomical dissection.

DR. HENRY D. FRY, of Washington, D. C., made the suggestion as to whether, if one succeeded in re-establishing the function of the tube by a second operation, it would lead to the occurrence of ectopic pregnancy; that some stenosis might be caused which would prevent the ovum from reaching the uterine cavity.

As to the primary operation for the production of sterility, the method of exsecting the tubes and the uterine muscular tissue was an excellent one, probably the best one, but if one had in view the hope of re-establishing function, it seemed to him it would be better to take a section of the tube itself. A number of cases of pregnancy had been reported to have occurred after the removal of the appendages, one on both sides, so that in the re-establishment of the function of the tube, if there was any expectation of it at some future time, it would seem much better to operate upon some section of the tube, and the ability to restore it was much better than through the uterine cornu, where there was a liability to contraction again, and closure of the tube.

DR. J. DOUGAL BISSELL, of New York city, by invitation, confined his remarks to those cases that demanded Cesarean section, and he invited attention to the report of a case. He was called to attend a negro woman in 1900, and found her in a very serious condition, the head of the child having been left in the uterus, the body being pulled away after an attempt at forceps delivery and an attempt at version. In passing his fingers through the superior strait he at once discovered the cause of the failure of the operator. The pelvis was justo-minor under three inches. The woman was seriously sick, but eventually recovered, and soon became pregnant again. He then suggested the possibilities of Cesarean section, which she and her husband did not consent to. They wanted him to wait. He gladly waited, and brought on labor between eight and a half months, hoping the child would come through the natural channel. After several hours' labor, the os

dilating fully, the child failed to come through the natural passage, although the occipito-posterior position of the head had not become engaged at any time. At last he decided to perform Cesarean section, which he did. The operation was done about six or eight months ago. At that time he was requested to perform an operation which either consisted of taking out the uterus or removing the ovaries and stopping pregnancy, but he did not feel justified in doing so. He resorted to the plan suggested by Dr. Harris, of exsecting the tube from the funnel, but his method was a little different, although not essentially so. He exsected the tube entirely from the uterus, and cut off that portion which was embedded in the uterus, tied it near the free end of the tube, opened the broad ligament, anchored the tube to the base of the broad ligament, and stitched over the peritoneal surface of the broad ligaments again. This he did, for the reason that if by chance the exsected portion of the tube was not perfectly done, and there was a communication established between the abdominal cavity and the uterine cavity, the functioning tube would convey the ovum to the base of this tube, and the spermatozoa, if they passed through the cornu again, would not influence it.

He believed that we should not ignore the importance of the fact of the menstrual function, nor the influence of the ovaries upon young women. We should preserve every normal tissue in the body in pelvic surgery, and not remove that which would check physiological action or produce unhappy psychological results. He thought it was preferable and more surgical to sterilize women in this way, telling them they can possibly become pregnant, rather than to remove any of these organs.

DR. HARRIS, in closing the discussion, said he did not quite understand what Dr. Polk meant by changes in the nutrition and changes in the ends of the tubes. He was sorry that he had left the hall. He did not think there were any special changes in the uterus or in the proximal ends of the tubes. He regretted Dr. Polk was not present to explain more fully what he meant.

Regarding the lumen of the Fallopian tubes, when the Society met three or four years ago, Dr. Bovee presented a paper on the potency of the Fallopian tubes. He had collected some cases and had made some observations himself, and was of the opinion, no matter how the stump of the Fallopian tube was treated in cases where the tube had been amputated near the uterus, whether tied with silk or not, the lumen of the tube was patulous, showing that it would remain so if not diseased. Exsecting the proximal ends of the tubes would not change them. There was reason to believe that this was supported by practical observations.

Regarding the predisposition to ectopic pregnancy, as mentioned by Dr. Fry, it was to be thought of in connection with the operation. However, one need not consider it too seriously, because both Dr. Fry and himself, and others, were ready to operate on ectopic pregnancy if it occurred.

Regarding the indications for the operation, he did not wish

to say very much, although yesterday morning the Society had considerable discussion on that item, and he was sorry there was not more discussion upon it this morning. Dr. Davis, in his remarks, had said, that it was about time to submit the question as to whether a woman desired to be sterilized or not to both the patient and husband, and if they desired it, he considered it was the duty of the obstetrician to do the operation.

DR. CHAS. P. NOBLE, of Philadelphia, read a paper entitled

PERSONAL EXPERIENCE IN OPERATIONS UPON DIABETIC PATIENTS.

The chief object of this paper is to elicit discussion on the general question of the influence which diabetes has upon the course and result of operations. The author said that there is a general impression prevailing in the profession that diabetes was one of the greatest complications to be met with by the surgeon, and that operation should be avoided upon diabetics.

Of the seven patients operated upon by the author, six made good recoveries, and one died of diabetic coma. In the six remaining cases the healing of the wounds and the general progress of the patients toward recovery were not different from that in patients not the subject of glycosuria.

In looking up the literature of the subject he had been able to add to his own list sixty-two cases of operations upon diabetics, upon those organs of the body which are the special field for the gynecologist and abdominal surgeon, making a total of sixty-nine cases. Of the sixty-two, there were fourteen operations upon the female breast, thirty-one operations upon the female generative organs, and seventeen abdominal operations, other than on the generative organs. Of the sixty-nine patients, fifty-two recovered, and seventeen died, a mortality of twenty-four per cent. Of the seventeen deaths, one was from erysipelas, two were from sepsis, five from causes not stated, and nine from coma. A careful reading of the reported cases would indicate that the proportion of deaths from other causes than coma was not extremely high. The chief cause of death after operations upon diabetics was coma, and apparently this result is the one which it is least possible to guard against.

The author's first operation upon a diabetic was an accident. The urine from two patients to be operated upon the same day was mixed in the laboratory. The supposed diabetic was refused operation, and the patient supposed to have normal urine was operated upon. The error was not recognized until the following day. This patient made a good recovery from the operation (the removal of the breast), except that there was suppuration in the axilla, due to a sponge left high up in the axilla. The favorable course of this case was a factor in inducing him to operate upon the subsequent cases.

The contraindication to operation is strongest in those patients

suffering markedly from the constitutional symptoms of diabetes—poor nutrition, wasting, intense thirst, and morbid appetite.

DR. JOSEPH TABER JOHNSON, of Washington, D. C., said he had had no particular experience in operating on diabetic patients, but he had postponed several operations on patients who were known to be diabetic. He had no doubt that some of them would have stood operation fairly well. Operations were urgently demanded, but the other members of the hospital staff and the microscopist voted against it. The subsequent history of the patients he did not know, but from what Dr. Noble had said and written, if he had had the same experience to back him up as had been cited to-day, he should have operated on several patients who were not operated on.

DR. PHILANDER A. HARRIS, of Paterson, N. J., said he had postponed operation in two instances on account of the presence of glycosuria. In another case he had forgotten how much sugar there was, but there was a sharp reaction under Fehling's test, he performed vaginal hysterectomy. The woman did fairly well for twenty-two hours, after which the pulse began to rise rapidly; temperature remained normal for ten or twelve hours after the pulse had risen, and the pulse at the end of twenty-four hours rose to 130; in twelve hours more it was 144. Thirty-six hours after the operation the temperature began to rise, and in two and a half days later the patient died of sepsis. To what extent the presence of sugar was a factor in the cause of death he did not know.

OFFICERS.

The following officers were elected for the ensuing year: President, Dr. Edward Reynolds, Boston, Massachusetts; First Vice-President, Dr. J. Whitridge Williams, Baltimore, Maryland; Second Vice-President, Dr. Edward P. Davis, Philadelphia, Pennsylvania; Secretary, Dr. J. Riddle Goffe, New York city, re-elected; Treasurer, Dr. J. Montgomery Baldy, Philadelphia, Pennsylvania, re-elected.

Boston was selected as the place for holding the next annual meeting; time, fourth Tuesday in May, 1904.

REVIEW.

SURGICAL DISEASES OF THE KIDNEY AND URETER, Including Injuries, Malformations and Displacements. By HENRY MORRIS. M.A., M.B. Lond., F.R.C.S. Fellow and Chairman of the Court of Examiners of the Royal College of Surgeons; Senior Surgeon to the Middlesex Hospital; Honorary Member of the Medical Society of the State of New York; Author of the Hunterian Lectures (1898) on "The Origin and Progress of Renal Surgery," of "Injuries and Diseases of the Genital and Urinary Organs" and of "The Anatomy of the Joints," etc. Two volumes, pp. 680 each. With two colored plates and two hundred engravings. W. T. Keener & Co., Chicago, 1903.

This very admirable work gives a systematic account of the regional anatomy, the malformations and displacements, the injuries and surgical diseases of the kidney and of the ureter, the affections of the perinephritic and the periureteral tissue and the surgical treatment of these conditions.

It includes about everything of value which has been established regarding the etiology, pathology, symptoms, prognosis, and treatment of the conditions under discussion.

The field of renal surgery, but a few years ago an almost untrodden waste, is now fairly accurately mapped out and traversed by well-worn highways. Before 1880, the date of the first nephrolithotomy, not more than twenty articles, chiefly on nephrectomy, had been written. During the ten years following more than three hundred papers were published, and between 1890 and 1900 about a thousand articles, lectures, and case-reports on renal cases appeared. From 1894 to the time of publication of these volumes about one hundred papers have discussed the surgery of the ureter, while during the five years before one a year would have included them all. This glance at the literature shows most plainly the vigorous growth and the wonderful strides which this branch of surgery is making and gives an idea of the magnitude of the task successfully carried to a finish by the author.

His style is lucid and easy and the teaching leaves the impress of a well-earned authority.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Hysterectomy for Puerperal Infection.—The discussion of the indications for hysterectomy in puerperal infections by H. Duvet (*Jour. des Sci. Méd. de Lille*, Apr. 4, Apr. 11) led him to the following conclusions: He divides them into (1) septicemias with evident local lesions in or around the uterus or appendages, which are often amenable to uterine disinfection, curettage, incisions, removal of appendages or hysterectomy; (2) septicemias without apparent local lesions. These are acute or chronic. Among the acute are some caused by placental infection which can not be relieved by the curette and in which abdominal or vaginal hysterectomy gives good results. In others extreme virulence of the microbic agent is the characteristic and grave feature. In these it is doubtful whether removal of the uterus will be efficacious if lavage of the blood by injections of normal saline solution does not cause some improvement. The chronic septicemias are the result of phlebitis or uterine or periuterine lymphangitis or of unknown foci which may often be at a distance from the genitals. Under these circumstances there are often multiple foci in the uterine parenchyma and afferent and efferent vessels. The writer terms these cases puerperal uterine pyemias. The septicemic symptoms usually begin after labor and last several weeks. Abdominal or vaginal hysterectomy may be useful, especially if performed early. In all cases of puerperal septicemia the best remedy, with uterine disinfection as an adjuvant or curative measure, is large subcutaneous or intravenous injections of normal saline solution. If the system has been sustained in this way against microbic intoxication one may then feel more inclined to radical treatment such as hysterectomy.

Cocq (*Gaz. de Gyn.*, Apr. 1, Apr. 15) believes that hysterectomy is indicated in acute puerperal infection when the following conditions coexist: existing or probably approaching severe toxemia, the uterus being the principal septic focus and constant source of infection, failure of other treatment, and ability of the patient to withstand the shock of operation. These conditions are found chiefly in cases of decomposition of retained placenta not removable by curettage, suppurative gangrenous metritis, or large tumors which, having been long compressed during labor, may slough, interfere with the lochial discharge, or aid absorption of septic products by their great vascularity. More doubtful indications are acute general streptococcus infections, in which hysterectomy has been known to act favorably by removing many bacteria, though showing no macroscopic lesions; pyemia, puerperal metrophlebitis, in which extirpation of the ovarian and hypogastric veins

containing a septic thrombus has been successful; septic general peritonitis, which requires the ice-cap, morphine, and surgical treatment, especially if abscesses form—opening and drainage of purulent foci. In the last, hysterectomy removes an important factor in sepsis and facilitates drainage. In cases with extension of the inflammation to the parametrium, appendages or pelvic peritoneum with severe local symptoms but good general condition and slow course of the disease it is well to employ ice and opium and to open and drain suppurative foci, but to reserve removal of the appendages or uterus until later if it is found necessary.

Pinard (*Ann. de Gyn. et d'Obstet.*, Apr.) summarizes his views upon this subject most tersely. He states that, leaving out of consideration the rare and the well-determined conditions,—placental retention, putrefaction of a uterine fibroid, rupture and inversion of the uterus,—which may require hysterectomy, neither symptomatology, bacteriology nor pathology can at present furnish an indication for that operation in acute puerperal infection.

Pregnancy After Rupture of the Uterus.—The question whether a subsequent pregnancy is an indication for Cesarean section in a woman who has had a rupture of the uterus is discussed by H. W. Freund (*Zeit. für Gyn.*, No. 8). The case upon which his arguments are based was one in which an extensive rupture of the uterus was sutured. The woman then passed without accident through five abortions brought on during the third and fourth months and a premature labor induced at the thirty-third week. Examination during the abortions and premature labor showed early stretching of the lower section and drawing into the uterine cavity of the scar area. He permitted the last pregnancy to go on nearer to term on account of an increase of muscular tissue near the scar in the previous puerperia. The question of performing Cesarean section in pregnancy following rupture cannot be answered either affirmatively or negatively in regard to all cases. To the writer it is less dependent upon the distention of the scar tissue than upon the time which has elapsed since the rupture, the degree of regeneration of muscle tissue in the region involved, and the size of the fetus. Whether, in a case of pregnancy coming on shortly after rupture of the uterus, early induction of abortion or Cesarean section near term is preferable must be decided in the light of individual circumstances. If the history and careful examination determine the presence of atrophy of the lower segment spontaneous labor at term is dangerous, and abortion or Cesarean section is indicated. If this atrophy is not present induction of premature labor is called for. If the rupture was not confined to the lower uterine segment and circumstances are generally favorable spontaneous labor may be awaited. When rupture has taken place total hysterectomy is not necessarily called for. If the general condition is not bad and there has been no infection abdominal section is not more dangerous than vaginal, and gives an open field for hemostasis and cleansing and draining the peritoneum while

maintaining fertility. Repeated uterine rupture demands total hysterectomy or supravaginal amputation.

Spontaneous Rupture of the Vagina.—Schuhl and Froelich (*Bull. de la Soc. d'Obst. de Paris*, No. 2) report a case of spontaneous rupture of the posterior cul-de-sac during labor, in a multipara. The woman had a pelvic deformity due to lumbo-sacral kyphosis. The uterus was anteverted so that its contractions simply caused distention, thinning and finally rupture of the posterior vaginal wall. The symptoms resembled those of rupture of the uterus. Laparotomy showed a tear so extensive and ragged that supra-vaginal hysterectomy was performed. Abdominal and vaginal drainage. Recovery.

Spontaneous Inversion of the Uterus.—Bruel (*Bull. de la Soc. d'Obst. de Paris*, No. 2) attended the patient in her second confinement. R. O. A. Severe pains. Five minutes after birth of the child, without any manipulation of the uterus there was a severe pain, and the woman raised herself in bed. The placenta was then seen at the vulva. Some minutes later a slight pain caused its expulsion without traction, followed by profuse hemorrhage. The uterine fundus could not be felt in its proper position, but farther down was a hard disc-shaped body. The hand introduced into the vagina found the uterus partially inverted. This inversion was easily reduced by pressure and hemorrhage ceased.

Hydrogen Peroxide in Puerperal Infection.—Deslandes (*Bull. de la Soc. d'Obst. de Paris*, No. 2) advocates the use of hydrogen peroxide for douching in puerperal infection. He presents only three successful cases, using peroxide 1:4. He also uses it in puerperal metritis: bed, hot vaginal injections twice a day, dilatation of the cervix if necessary, cleansing of the cervix with peroxide on a cotton ball, and repeated injections of the same fluid into the uterine cavity until it returns without frothing. A cure is always effected within a month.

So-called Fever of Pregnancy.—In the text-book of John Burns, 1809, appeared a description of a so-called "fever of pregnancy." Recently Tarnier and Budin have dignified this supposed specific affection by a special article in their treatise, but it has had no other recognition. Pinard (*Ann. de Gyn. et d'Obst.*, Mar.) now denounces such an expression as not only useless but dangerous, serving only to cover an absence of diagnosis. He states that there is no more an essential fever of pregnancy than a spontaneous peritonitis. Those who heed this warning are much more likely than others to discover in time that the fever of unknown origin is due to such causes as appendicitis, torsion of the pedicle of a hematosalpinx, hydrosalpinx, or ovarian cyst, or cholecystitis.

Conservative Cesarean Section.—In reporting a case of conservative Cesarean section for pelvic deformity H. Ferré (*Ann. de Gyn. et d'Obst.*, Mar.) calls attention to the following points which he regards as important: As high incision as possible of both abdominal wall and uterus, so as to avoid incising the lower

uterine segment which is much less retractile than the upper; careful suture of the uterine wall; avoidance of constriction of the uterine pedicle which would diminish rather than increase retraction of the organ; complete isolation of the uterus by large compresses from the intestine before it is opened, so that the peritoneum cannot possibly be soiled; rapidity of operation.

Premature Separation of Normally Situated Placenta.—A multipara had symptoms of renal insufficiency for several days in the eighth month, then abdominal distention and pain, dizziness and loss of fetal movements. The next night there were signs of rupture of the membranes during sleep, soon followed by those of internal hemorrhage, including syncope, and slight external bleeding. Three hours later she spontaneously expelled a small child with the placenta and fluid and clotted blood. The uterus contracted and there was no further trouble. In connection with this case Guérin-Valurale (*Bull. de la Soc. d'Obst. de Paris*, No. 3) draws attention to the unfavorable effect of rupture of the membranes in a case of internal hemorrhage from separation of a normally inserted placenta when the fetus cannot be removed at once. Many authors have advocated this very treatment of such hemorrhage, believing that after evacuation of amniotic fluid the uterus will contract upon the fetus and so arrest bleeding. The writer believes that the removal of so small a proportion of the uterine contents will only allow further bleeding to the same extent to replace the fluid withdrawn. The treatment which he advises includes, of course, immediate evacuation of the uterus in cases with the os completely dilated. If dilatation is incomplete and hemorrhage internal he would preserve the unruptured membranes which act as a tampon, and would dilate the cervix digitally to allow emptying the uterus. If the os is incompletely dilated, hemorrhage both internal and external and the vertex presenting with no apparent obstacle to its descent he would rupture the membranes in order to allow it to come down and close the internal os. Should it fail to do so the bag of Champetier de Ribes would probably succeed, and, is the method to be chosen in other than vertex presentations or vertex in which there is a probability that the head will be prevented from closing the uterine orifice.

Intestinal Obstruction by the Gravid Uterus.—A. Brindeau (*Bull. de la Soc. d'Obst. de Paris*, No. 3) was called to see a primipara near term who for several days had had abdominal pain and distention, vomiting of green fluid and obstinate constipation. Temperature 99.5, pulse 120. She was operated upon for appendicitis, but only a slightly distended intestine was found. The abdomen was closed and enemata ineffectually employed. Vomiting continued, no gas was passed and the general condition became worse; cold extremities, pulse 130, respiration 40, delirium. As the fetal heart sounds were rapid and feeble Cesarean section was performed, the child saved, and the uterus sutured. The large intestine was greatly distended but no obstruction could be discovered; the portion in the pelvis was empty and contracted. Af-

ter this enemata were effectual and improvement rapid. Since no other cause could be found and the symptoms disappeared after the uterus was emptied, Brindeau ascribes the trouble to compression of the large intestine by the gravid organ.

Acetonuria and Pregnancy.—Vicarelli and others have considered the presence of acetone in the urine of a pregnant woman as diagnostic of death of the fetus. Audibert and Barraja (*Ann. de Gyn. et d'Obst.*, Mar.) have studied in this connection the urine of twenty-four women during pregnancy and labor. Their results show that acetonuria is not present in either normal or pathological pregnancy, but that it frequently occurs during labor, not disappearing for twenty-four to forty-eight hours after its termination. They find that retention of a dead fetus in utero does not necessarily cause acetonuria, but does so in the great majority of cases. They observed its occurrence in six of eight cases of fetal death before labor. They regard it as due to several causes: labor, intoxication by a dead fetus and eclamptic intoxication.

Habitual Death of the Fetus.—Lop (*Rev. Mensuelle de Gyn., Obst., et Pæd. de Bordeaux*, Mar.) presents the histories of five cases of habitual death of the fetus. All were systematically submitted to specific treatment in spite of the absence of evidences of paternal or maternal syphilis, and such causes as diabetes, albuminuria, tuberculosis and chlorosis were excluded. In two premature labor, at eight months and ten days and at seven months, twenty-one days, respectively, gave living children. The same result was obtained in which, after refusing this treatment, absolute rest during the second three months was insisted upon. In the remaining two cases absolute rest was unsuccessful. The cases are described as showing the value of induction of premature labor in these patients. Prolonged rest is not constantly effectual and may lead to abnormal increase of weight with its attending discomforts.

Rupture of Pubic Symphysis During Basiotripsy.—Bender and Theuveny (*Comptes Rendus de la Soc. d'Obst., de Gyn. et de Pæd. de Paris*, t. v., No. 1) record a case of rupture of the pubic symphysis during basiotripsy. It was not discovered until an effort to tampon the uterus was made, when a vaginal wound was found leading to the separated pubic bones. A tight flannel band was the only treatment employed. Uneventful recovery with no pain, limping or abnormal mobility after rising.

Appendicitis After Labor.—C. Porak and C. Daniel (*Comptes Rendus de la Soc. d'Obst., de Gyn. et de Pæd. de Paris*, t. v., No. 1) give the history of a case of perforating appendicitis, which is of interest chiefly because unlike most of the reported cases the symptoms followed labor, suggesting puerperal infection. The onset was insidious and even perforation of the appendix by a calculus and the subsequent peritonitis did not cause severe pain, vomiting or marked tenderness. In addition to the perforation the appendix had almost entirely sloughed off. The woman

had noticed slight pain on the right side during labor. Chills during the next night, and fever ushered in the gradual invasion. On account of the onset of fever after delivery, chills, clots in the uterine cavity, poor general condition, abdominal rigidity, partial uterine immobility and pain on both sides of that organ puerperal infection was suspected. The diagnosis was made at autopsy.

GYNECOLOGY AND ABDOMINAL SURGERY.

Diffuse Tumor in the Pelvic Cavity.—H. Keiffer (*Bull. de la Soc. Belge de Gyn. et d'Obst.*, t. xiii., No. 4) records an unusual case of pelvic tumor. The patient, a woman of thirty-two, had suffered for two years from indigestion, obstinate constipation, constant pain in the whole abdomen and loss of size of the abdomen, but no fever or peritonitis. Examination showed that the entire pelvic cavity was filled by a tumor whose size and attachment could not be determined. No vesical or menstrual symptoms, rectal examination negative. Laparotomy showed a diffuse mass including bladder, uterus, appendages, small intestine and descending colon. In lifting the mass to determine its point of attachment it was easily torn off, showing that it was a friable growth from the intestine. After removing the rest of the diseased intestine it was impossible to find the rectal stump so an artificial anus was formed by suturing the upper stump into the lower end of the abdominal incision. Recovery was rapid. Two years later a curettage for metrorrhagia permitted an examination which showed the rectum closed above at a point reached by the end of the finger, the uterus slightly enlarged but movable and the broad ligaments palpable, though the genitals were left matted together at the time of the intestinal resection. The intestinal tumor consisted of a healthy mucosa, a nearly normal muscular layer, and a subperitoneal connective tissue which was the site of a fatty growth. Four years after the operation the artificial anus was closed. The rectum was too low and too much atrophied to unite with the upper stump of the intestine, and the exclusion of the entire large intestine with union of the small intestine to the rectum was also not feasible for this reason. The transverse colon was liberated, drawn down and sutured to the margin of the anus, the rectal stump having been freed from this and dissected off by the finger. The result was perfect except that the anal sphincter still lacks tone.

Tuberculous Peritonitis.—The question of the surgical treatment of tuberculous peritonitis is broached by V. Van Hassel (*Bull. de la Soc. Belge de Gyn. et d'Obst.*, t. xiii., No. 4). His cases include nine children, twelve adolescents and nineteen adults. Women are apparently more often affected than men, but this is possibly explained by the frequent abdominal sections performed upon women leading to a diagnosis which might otherwise not be made. The disease is most benign and curable in adolescents. It

is more serious in children because it is often accompanied in them by intestinal ulceration, and in adults because on account of its slow development the lesions are advanced and extensive when recognized. Results show that in all cases intervention cannot be too early. The good effects and their duration are directly in proportion to the precocity of such treatment.

Treatment of Vesico-Vaginal Fistula.—Otto Küstner (*Zeit. für Geb. u. Gyn.*, Bd. xlviii., 43) makes a transverse incision like that of an anterior colpotomy. The ends of this incision are then connected by another, curved so as to pass around and below the fistula. The cervix is separated from the bladder up to the vesico-uterine fold of peritoneum. The second curved incision is then carried to a depth of at least one centimeter, and the edge of the first incision along the anterior wall of the cervix is sutured to the lower edge of the curved incision. If a large amount of mucosa is included in the area circumscribed by the two wounds Küstner dissects it off. Good results were obtained in eleven cases by this method. If the fistula is situated low in the vagina suturing the cervix to the lower incision naturally causes a partial prolapse of the uterus.

Treatment of Inflammatory Diseases of the Appendages.—Oscar Nebesky (*Zeit. für Geb. u. Gyn.*, Bd. xlviii., 43) presents the results obtained in two years at the Second Gynecological Clinic of Munich by the conservative treatment of inflammatory diseases of the appendages. The cases numbered 240 mild, 120 severe. The majority were of gonorrheal origin. The treatment consisted in absolute rest, good feeding, avoidance of all injury. In the acute stage the ice-bag was employed, but no other local measures were permitted. In the chronic stage: hydrotherapy, hot-air treatment, ichthyol or alcohol locally, finally hot sitz-baths and massage. After three months there was usually marked improvement; after six few cases needed operation. Fifty cases were operated upon; most of these during the first year covered by the report.

Parovarian Cyst.—Abadie and Moitessier (*Ann. de Gyn. et d'Obst.*, Mar.) report two cases of parovarian cyst associated with ovarian cyst of the same side, one of which had been previously recorded. The chief points of interest in the new case were the enormous size for a cyst of this class, the contents being twenty four litres, and the composition of the fluid. The latter is usually free from albumen, in fact, this feature has been considered characteristic; but in this instance albumenoid materials were abundant.

Methylene Blue in Gynecology and Obstetrics.—Chaleix-Vivie and Kohler (*Bull. Mtd. de la Clin. St. Vincent de Paul*, Mar. and Apr.) have found by animal experiments, bacteriological and clinical study that chemically pure pulverized methylene blue is an odorless, non-caustic and non-toxic agent in metritis which rapidly arrests menorrhagia and metrorrhagia, diminishes or stops

leucorrhœa, has sometimes a rapid and durable analgesic action especially in dysmenorrhœa due to changes in the mucosa or to uterine antifixion with stenosis of the cervix. It is efficacious in old ectropion, bleeding and infected. It had no unfavorable influence when there was parametritis or salpingitis. In gonorrhœal vaginitis during pregnancy, applied to the vaginal walls, and in gonorrhœal endocervicitis at that time, applied to the outer surface of the cervix, the writers claim excellent results.

DISEASES OF CHILDREN.

Angiosarcoma of the Liver.—J. C. Cook (*Jour. Am. Med. Assoc.*, March 28, 1903) reports a case in a child of three and a half years. "The frequent occurrence of sarcomata in young persons," says Cohnheim, "is among the evidences pointing to a congenital origin." Traumatism and inflammation play some part either in developing a lesion from which it may originate or stimulating a new growth from a latent sarcoma. No specific form of bacteria has been demonstrated, yet the parasitic theory has many adherents in recent years. Experiments with implantation of the disease in animals have been unsatisfactory. Some relation has been traced between sarcoma and syphilis (Stengel). The seat of the sarcoma is from pre-existing connective tissues, and may arise in nearly any organ or structure of the body. It is essentially malignant in character and tends to recur after removal. Metastasis occurs through the circulation. The degree of malignancy varies greatly. The small, round cell and melanotic varieties are the most dangerous. The exact influence of sarcoma on metabolism is unknown, yet it is a well-established fact that sarcomatous growth is injurious to the general health, as is shown by the marked emaciation, anemia, leucocytosis and the sometimes existing irregular fever. The structure of sarcoma cells is round, cylindrical and spindle-shaped. The spindle-celled sarcomas are harder than the round cell. The round-celled variety may be almost entirely composed of spherical cells, large or small in size. These enter into combinations in various ways, and are modified by their combinations and the structure in which they are situated. Stengel, in discussing tumors of the kidneys, says that sarcoma is the most frequent malignant tumor. It may occur congenitally or in later life. The multiform character of sarcoma of the kidney suggests an embryonal origin, and it is not unlikely that the primitive Wolffian bodies are the starting point of the disease. The special variety of sarcoma to which the specimen from the case reported in this article belongs, is known as an angio-sarcoma, or more correctly "hæmangio sarcoma." In this variety the sarcomatous proliferation begins in the adventitious coat of blood vessels. The tissue of the tumor in typical cases is almost wholly composed of a tangle of vessels whose walls are surrounded by heavy masses of cells which extend even as far as the endothelium. Such a tumor, therefore, is made up essen-

tially of thick-walled cellular tubes which partly follow an independent course and partly unite with other tubes by an anastomosis which gives rise to a complicated mass of twisted and interwoven cords. It should be mentioned that in both endothelium and angiosarcoma the alveolar and tubular structures may be wholly lost in places through the diffused manner in which proliferation takes place. Angio-sarcoma occurs in the brain, kidney, testicles, lymphatic glands, breast, skin, bone, thyroid and liver, although it is a very rare occurrence in the two situations last mentioned.

Bromoform Poisoning.—Henry K. Dillard (*Therapeutic Gazette*, April 15, 1903) reports the case of a child of sixteen months, admitted to the Children's Hospital Nov. 13, at 9.45 p.m. The child had been suffering from a bad cold and cough for the previous two days, and at seven o'clock on the evening of the date of admission four drops of bromoform were administered to allay the cough. No relief was afforded by this first dose. At nine o'clock a second dose of four drops (?) was given which the child vomited. A few minutes later her head suddenly fell forward, the eyes became hazy, she gasped for breath, her skin became cold, her body limp, and complete unconsciousness followed. The pupils were contracted to the size of pin-points, and did not react to light. There was an odor of bromoform on the breath, her face was cyanosed, her lips partly open, her skin cold and clammy, her breath sounds irregular and shallow. Her pulse was 80 to the minute, weak and irregular. The heart sounds were distant and feeble. Strychnine and atropine were given hypodermically; brandy and aromatic spirits of ammonia were dropped into the mouth. Lavage of the stomach was performed, and a soap and water enema was given. A cold bath was followed by a thorough rubbing of the body and limbs. Artificial respiration was resorted to. The condition of unconsciousness continued until 1.15 a.m., at which time the child suddenly came out of the unconsciousness, moved her arms and legs, cried lustily, and appeared to be fully recovered. She slept at intervals through the night, but the following morning again went into a condition of unconsciousness, from which she was, however, easily aroused. She was discharged fifteen hours after admission to the hospital, apparently in good health. The points of especial interest in this case are: 1. The rapidity with which unconsciousness came on, and the corresponding rapidity with which the child returned to consciousness, after a period of over four hours. 2. The pin-point pupils, which might have led to an incorrect diagnosis of opium poisoning. 3. The bromoform administered to the child was not the last in the bottle, and therefore concentrated, as six fluidrachms remained in the ounce bottle after the second dose.

Buttermilk in the Feeding of Infants.—An article (*Medicine*, April, 1903) says that Gregoire Jacobson calls attention to the fact that for more than a hundred years buttermilk has been employed in Holland in the feeding of infants. It has also been extensively employed in the great pediatric clinics of Leipsic, Berlin and Dres-

den. It may be prepared from cream or milk. The simplest way is to take milk, allow it to stand about twenty-four hours, separate the cream, and churn it, in this way removing the fat. It is important that the process should be carried out in a clean manner. A cooked buttermilk is prepared according to Baller's method by adding to a liter of buttermilk a soup-spoonful of rice. It is then boiled for about twenty-five minutes, during which it is constantly agitated. Then two or three soup-spoonfuls of syrup made from cane sugar are added. The buttermilk should always be preserved in glass, not being brought in contact with metals, which it may corrode. The buttermilk should be cooled slowly, as in this way the coagule has a much finer subdivision.

Buttermilk prepared in this way is an aliment of the first order for nurslings. It is easy of digestion and assimilation, and is marvelously supported by the majority of infants affected with chronic gasroenteritis and dyspepsia. In the majority of dyspeptics it is better borne than most of the special foods recommended is the treatment of sick children, and which pretend to approach more or less closely mother's milk. There are no complications which follow the use of the food even when it is prolonged. It does not develop rickets. Its easy digestibility is probably due to the excess of acid, the absence of fat, and the fact that the casein is already coagulated and in a state of minute subdivision. Not the least important of its advantages as an infant food is found in the fact that it may be furnished at a price which will place it within the reach of all. Especially would this be the case if an effort were made to have the large creameries preserve the buttermilk free from contamination. B. Salge, in the *Jahrbücher für Kinderheilkunde*, 1902, says that buttermilk has been used by Heubner since the spring of 1900. It has been given to 119 infants with 85 successes. It is prepared at the Charité clinic by adding to one liter of buttermilk 15 grains of starch and 60 grains of sugar, heating and stirring, after which the mixture is poured into a sterilized flask, closed with a rubber cap, and kept in a cool place.

Clinical Observations on Circulatory Failure in Acute Infectious Disease.—Augustus Caillé (*Arch. of Ped.*, March, 1903) states that his article is merely a preliminary report dealing with circulatory failure from (1) direct loss of blood; (2) shock; (3) loss of blood and sepsis combined (in surgical cases); (4) sepsis in acute infectious disease, based upon experiment and hospital experience. *Saline infusion* and *hypodermoclysis* may be relied upon to stimulate promptly and safely in circulatory failure. Infusion has an immediate effect; hypodermoclysis improves the circulation in from 5 to 10 minutes, as shown by the quality of the pulse and the slowing of respiration. The action of both is more prompt than that of drugs and apparently increases the effect of drugs given hypodermatically. It is safe to continue with the saline until the pulse is of good quality and then to stop it. As to *septic* cases, saline infusion should be reserved for those in which there has been a decided loss of body fluids, as in severe choleraic

or typhoid diarrhea. In other septic cases the use of saline infusion or hypodermoclysis may be warranted, but they should never be employed in a routine way, or when the heart's action is hampered by pericardial effusion. Enteroclysis properly carried out with Kemp's flexible double current catheter (15 minutes' flow of water at 110° F.) appears to be an absolutely safe method of combating circulatory failure in septic conditions. It stimulates kidney secretion, and thereby promotes the elimination of poisons. It induces intestinal absorption of water whenever the body craves for water. It has a certain effect in reducing temperature. It appears to be indicated as a routine treatment in all septic conditions, even if the kidneys be not involved. In severe anemia enteroclysis is followed by an actual improvement of the blood mixture independent of the administration of drugs. The author would emphasize the fact that circulatory failure is not always heart failure, and that this distinction should receive more attention at the bedside and that enteroclysis properly carried out should be universally adopted in the practice of medicine as a therapeutic measure of undoubted value in cases where increased elimination through the kidneys is desired as in all forms of infectious disease and in faulty metabolism generally.

Cream for the Home Modification of Milk.—Chas. W. Townsend (*Boston Med. and Surg. Jour.*, April 16, 1903) reaches the following conclusions from his researches: (1) Centrifugal cream is probably less desirable for infant feeding than gravity cream. As obtained from dealers it is often far from accurate in percentage. (2) Siphonage for obtaining gravity cream is an accurate method, but one requiring considerable skill to perform accurately and safely. (3) Dipping off the top milk is an accurate and safe method if reasonable care is used. (4) The method for obtaining gravity cream by pouring off the top is very accurate and extremely simple. There is no instrument to be bought and kept clean. By this method it is possible to obtain cream of any desired percentage up to 26 per cent. (5) To ensure perfect accuracy, frequent examinations with the Babcock machine are required; but for practical purposes this is not necessary, provided the mixed milk from a well-regulated dairy is obtained.

Cyclic Vomiting in Children.—Thomas C. Ely (*Jour. Am. Med. Asso.*, March 28, 1903) states that the attacks he describes occur in gouty and neurotic children, and are due to toxins from faulty metabolism and faulty kidney elimination. The attacks are distinct neuroses, being due to the action of a toxin on the vomiting centre in a predisposed subject. Cyclic vomiting has been likened to migraine in its tendency to recurrence or periodicity. Prostration is extreme. Death has been reported in two instances. The vomiting is excessive, severe, protracted and nothing can be retained by the stomach. Thirst is likewise excessive and distressing. There is no connection in an attack with diet and indigestion. There is usually a fever of indefinite type. Abdominal symptoms are quite immaterial and varied. There may or may not be con-

stipation. The urine seems the most distinctive feature, being loaded with amorphous urates and uric acid crystals entirely out of proportion to the fever and other phenomena. The differential diagnosis is (1) from recurrent bilious vomiting; in cyclic vomiting the excessive thirst, cyclic character, severity and persistence of the vomiting are quite pathognomonic. (2) Vomiting may be due to local disease, irritation of the walls of the stomach itself, by medicine or food, overdistension with gas, congested mucous membrane, with irritating secretions, which cases reveal themselves by a study of the relation of vomiting to food, and a study of the material vomited. (3) Vomiting may be due to intestinal causes of the same nature as above, or to such other abdominal causes as obstruction, peritonitis, appendicitis, which soon present very distinct physical signs and symptoms of these conditions. (4) It may also be reflex from other disturbance, as of the cerebrospinal system or the special organs—from brain disease, from the pharynx, eye or ear, or almost any organ. (5) Vomiting may be central or toxic from an irritating state of the blood acting on the vomiting centre, in the same manner as a hypodermic or apomorphia. This would include infectious diseases which soon express themselves by well-known symptoms or rashes, and the vomiting is usually neither prolonged nor excessive, and very frequently consists of but one or two explosive efforts. Among other causes of central vomiting may be included the toxemia incident to kidney disease. In the vomiting of children it is always wise to follow two rules—to examine carefully the throat and not to be easily convinced that the cause is local—an irritated or diseased stomach. Very frequently it is not at all of gastric origin. The stomach, organic brain disease and organic kidney disease may represent the most frequent causes. (6) Simple or tuberculous meningitis may present greater difficulties, especially when we consider that vomiting may be rarely the only symptom of such a meningitis till a fatal issue by convulsions. The condition of the pupils, the eye ground, irregular pulse and respiration assist the differentiation. *Treatment* is sedative and eliminative. The indications are: First, to lessen the irritability of the vomiting centre; and second, to eliminate. The first has been attempted by bromids and chloral by the bowel, which is not satisfactory. Nothing is so effective as hypodermatics of morphin and atropin in severe cases. In less severe cases cocain and Fowler's solution lessen irritability both of the vomiting centre and the peripheral nerve endings in the stomach wall. Elimination is best accomplished by calomel, dry on the tongue in small and frequent doses, in conjunction with high saline enemas. Gavage has effected good results in young children. No other diet than some of the liquid peptonoids in form should be attempted for several days. In the interval there is indicated abundant fresh air and careful skin activity, exercise short of fatigue, an avoidance of nervous strain and child worry, with an antiuric-acid diet. In conclusion the author wishes to emphasize (1) the importance of being watchful for the vomiting of this gastric neu-

rosis, distinguishing it particularly from bilious vomiting and the vomiting of kidney disease, and reflex vomiting, as of brain disease; (2) in children of gouty and neurotic history the three cases reported in this article point to a toxin allied to the uric acid series as the possible blood irritant causing the vomiting; (3) the importance in severe cases of hypodermic injection of morphia and atropia in conjunction with elimination, by high saline enema; by gavage; and in extreme cases, hypodermoclysis and even intravenous injections of saline solutions.

Defective School Children.—An editorial (*Medicine*, April, 1903) states that a report recently made to the Board of Education in New York shows that there are 8,500 children in the schools of that city who are below normal mentally. The percentage is 1.7. The deficiency of mentality does not include the imbecile, epileptic and others with grosser mental defects, but simply those whose mental deficiency is of the sort that makes their education with their brighter fellows practically impossible. They cannot keep on with their classes, consequently they fall behind and are a serious hindrance to the teacher if an attempt is made to keep them abreast of the others; or if they are simply neglected, these children fall into a hopeless condition, and are finally removed from school without the advantage of systematic training. It is not contended that the New York figures are accurate, as the judgment of different superintendents as to what constitutes a defective child would vary. Approximately the figures are correct. What is true of New York is certainly true of other large cities. In every city with a school population of 100,000, there are probably 1,500 defective children. Such would warrant the Board of Education in making special provision for such children. The literature contains abundant reference to the frequency of visual and aural defects among school children. Just how far such defects are responsible for the backwardness of deficient children we have no means of knowing. Adenoids and their associated defects of hearing, together with eye-strain, may account for some cases of backwardness. After eliminating those who have sensory defects, there would unquestionably remain a considerable proportion so far mentally deficient as to require separate provision for their education. The need and value of such provision will never be fully appreciated by our educators until our schools have an adequate system of medical inspection. The latter is quite as important as that they have teachers.

The Etiology of Affections of the Left Heart in Childhood.—L. Concetti (*La Riforma Medica*, March 11, 1903) concludes from his researches that acute polyarticular rheumatism is the most frequent cause of acquired cardiopathies. In children endocarditis from rheumatism or other infections is more rare than in adults. The majority of cardiopathies in children which are supposed to be acquired, are really the result of arrested or faulty embryonal development, exhibited before birth or in the first years of extra-uterine life.

An Extraordinary Case of Spina Bifida (Spino-Meningocele) in a Fetus.—John L. Bouchardiere (*Indian Medical Record*, April 1, 1903) reports the case of an infant born to a low-caste woman in Quilon, Travancore. There was such difficulty in extracting the child that he was sent for by the midwife. Natural means and all his efforts failed to extract the fetus, which had perished before he arrived. The head and trunk were already born, but no further progress had been made. The feet began to present and he at first took them to be those of another fetus. or a case of monstrosity with one pair of legs, two trunks and two heads. A further examination was made, and he felt a soft and thick pedicle at the back of the fetus on the sacral aspect, which could have been mistaken for the distended abdomen of another child; but as traction failed to deliver it, he examined again, and a distinct fluctuation being felt, he passed the perforator through one side of the distended portion and punctured it. This brought away about 13 pints of clear serous fluid, together with small fleshy masses. A second puncture was made on the sacral side and about 12 pints escaped. After this a little traction brought away the whole mass of the collapsed sac of the tumor, which measured in that state about 14 inches in breadth and 16 inches in length. This was attached by a broad pedicle to the sacrum of the child. Within the sac was found a small fleshy growth springing from the sacrolumbar region. This is the most extraordinary case of spina bifida that the author has come across during his experience of 29 years. He has had several cases of smaller tumors of the kind.

Fatal Hemorrhage from Conjunctiva in the New-Born; with Report of Case.—Meyer Wiener (*St. Louis Med. Rev.*, April 25, 1903) says that spontaneous fatal hemorrhage from the conjunctiva, with death due to the hemorrhage itself, is extremely rare. The author in a most careful search through the literature has been able to find but two cases in addition to the one which he reports. This was the newly-born infant of a mother who had a number of chancroids on the labia and near the urethral opening; she also had a purulent discharge in which the gonococcus was found. There was no history of hemophilia on either side. Two drops of a two per cent. solution of nitrate of silver were instilled into each eye of the infant immediately after birth. On the following morning the eyelids, face and pillow were covered with blood; it had first been noticed about 5 o'clock a.m. In the afternoon the lids and face were again covered with blood. Several drops of a 1 to 3,000 solution of adrenalin chlorid were instilled into each eye with very little if any effect. Oozing continued, with intermissions, in spite of treatment, which consisted of adrenalin powder, compression bandage, washing the conjunctival sac with gelatin, digital compression, compression with cork, and the internal administration of calcium chloride solution. On the seventh day after birth the baby died. The autopsy showed the organs to be normal, and no internal hemorrhages. Microscopic examination of a section of the conjunctiva showed nothing abnormal. The au-

thor believes that the silver nitrate was the occasion, but that the cause of the hemorrhage was undoubtedly a predisposition on the part of the child to bleed.

Intussusception of the Vermiform Appendix.—Patrick S. Haldane (*Scottish Med. and Surg. Jour.*, April, 1903) reports a case under the care of W. Bron. The child was three years of age, and the symptoms given were those of intussusception. As there were evident signs of peritonitis operation was performed and the appendix was found to be invaginated from root to tip, the root of the appendix forming the apex of the "intussusception," and the coats of the cecum the "intussusceptiens," with great difficulty, owing to the friability of the walls of the secum, the intussuscepted appendix was reduced. The appendix appeared very much swollen, and measured three inches from root to tip. The part which was invaginated was greatly swollen and deeply congested on its surface; the part at the edges of the thickened cecum was constricted and showed a tendency to gangrene. The appendix was finally amputated, and the stump treated in the usual way. It may be concluded from the above: (1) That the intussusception was chronic, having existed for fourteen days at least; (2) that it was in all probability ileo-cecal in origin, and that the invaginated appendix was merely a secondary thing, or that intussusception of the ileum and appendix had occurred at one and the same time; the adherence of the appendix to the cecal walls would justify this conclusion; (3) that the ileo-cecal part of the intussusception had become reduced before the operation, probably after administration of an enema; (4) that the peritonitis was produced by the reduction of the ileo-cecal intussusception, the peritoneal surface of ileum being coated with the bacillus coli communis, which had migrated from the mucous surface, while the bowel was intussuscepted. The case is of interest not only from its rarity, but as exemplifying the great mobility of the cecum and appendix, the history pointing to the three different positions which the organs took up, viz., first of all at the hepatic flexure of the colon, then at the splenic flexure, and thirdly, round the umbilicus.

The Physical Training of the Young.—An editorial (*Med. Press and Circular*, March 25, 1903) states that the Royal Commission appointed in March, 1902, to inquire into the opportunities for physical training now available in State-aided schools and similar institutions in Scotland, has just issued a very suggestive report, many of the recommendations applying with equal force to educational institutions other than Scottish. Scottish students are reputed to be terribly in earnest, and it is easy to understand that they would regard time spent in purely physical culture as more or less wasted. We have no evidence to show that this earnestness also characterizes the youth of Scotland during the period of elementary education, and we suspect that any deficiency of physical culture at this period must be due to lack of encouragement at the hands of the school authorities, if not, indeed, to positive disapproval. The report lays down the broad principle that a

certain equilibrium must be maintained between physical and intellectual development, and they improve upon that principle by suggesting that the benefits of systematic instruction and training should not be restricted solely to the mental evolution of the scholars; in other words, that school discipline should be extended to physical exercise, apart from mere games, so that the muscles may receive a training, roughly speaking, equivalent to that of the mind. In view of the unhappy climate which prevails in these northern parts, this would entail a much more generous provision of play-balls, where exercise could be taken under cover, as well as the provision of skilled instructors as far as possible. An outcry is raised from time to time against the undue amount of time and attention devoted to athletics in the southern universities, but apparently the criticism, however justifiable in respect of public schools and universities in England, is inapplicable to the students at Scottish universities. As a matter of fact, even in English ones, it is only a fraction of the students who go in for excessive physical culture, and what is needed is to generalize this branch of training, that is to say, to erect it into a system instead of leaving it to individual discretion. The first step in regard to elementary schools must necessarily be to secure an adequate training in physical culture on the part of the teachers, because the services of expert instructors cannot possibly be available in the majority of elementary schools, at any rate. There are two subjects strictly germane to the object of the inquiry which call for special attention, viz., the question of medical supervision, and the problem of securing an adequate supply of food. It is suggested that it should be the duty of school boards and managers to arrange for the provision of suitable food, preferably by voluntary agencies, and failing assistance from this source to provide the meal at cost price, debiting the price to the parents—a proposal which in practice would be found very difficult to work. Lastly, the principle is enunciated that educational authorities should have the command of medical advice and assistance in the supervision of schools, and the desirability of keeping a systematic record of physical and health statistics is urged. It is obvious that no system of physical culture could be enforced, except under medical supervision, seeing that such training requires to be adapted to the physical condition of the individual scholar. The report abounds in useful suggestions, but it will take much time and study before they can be reduced to a practical scheme. One point to which no allusion is made is the propriety of utilizing the holidays for purposes of systematized physical exercise. Mere idleness is detrimental alike to the body and to the mind, and the scholars, as well as their parents, would be grateful for advice and training in the art of developing the body in the intervals left by the holiday interruptions.

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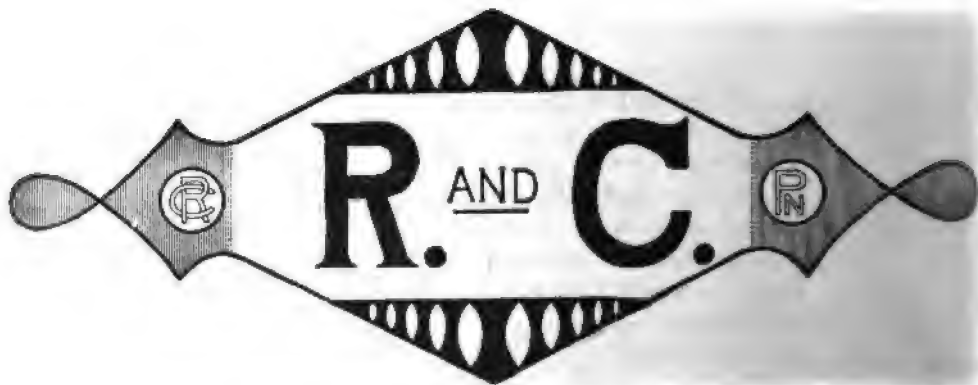
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contains besides the nutritive elements of beef, gluten of wheat and nucleo-albumins, the enzymes of the digestive glands. For those ill-nourished, nervous individuals, brain workers, and those requiring stimulation, if a tablespoonful of TROPHONINE be added to a wineglass of milk you will have a most delicious and nutritive drink, and a true nerve food.

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SAMPLES AND LITERATURE ON REQUEST.

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emmenagogue properties of this drug, evidenced by physiological experiments on animals, due to its specific action which stimulates the circulation and improves vascular condition, excitement and a normal contractibility of smooth muscular tissue of the uterus.

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The true active principle of parsley, (differing from so-called Apiole) in four minims capsules.

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Apioline is harmless, certain in results and easy of administration. It should be given in doses of 2 or 3 capsules daily, with meals, two to three days previous to the expected menstrual epoch. Apioline regulates and promotes an almost painless flow of the menses.

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A 1% SOLUTION OF
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For Local and Internal use. Astringent, Hemostatic and Heart Stimulant.
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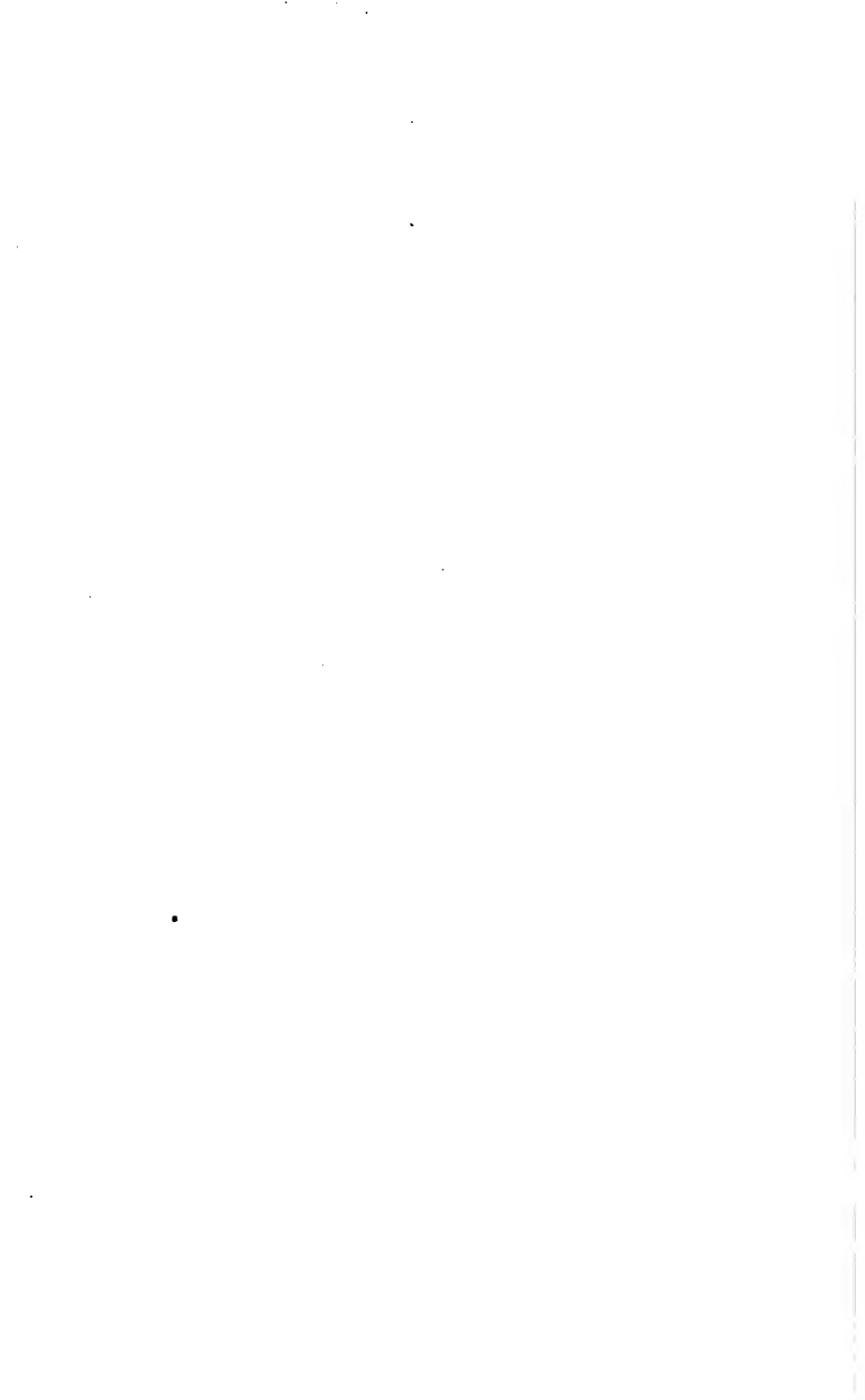
insist on rest and freedom
from care; then always prescribe

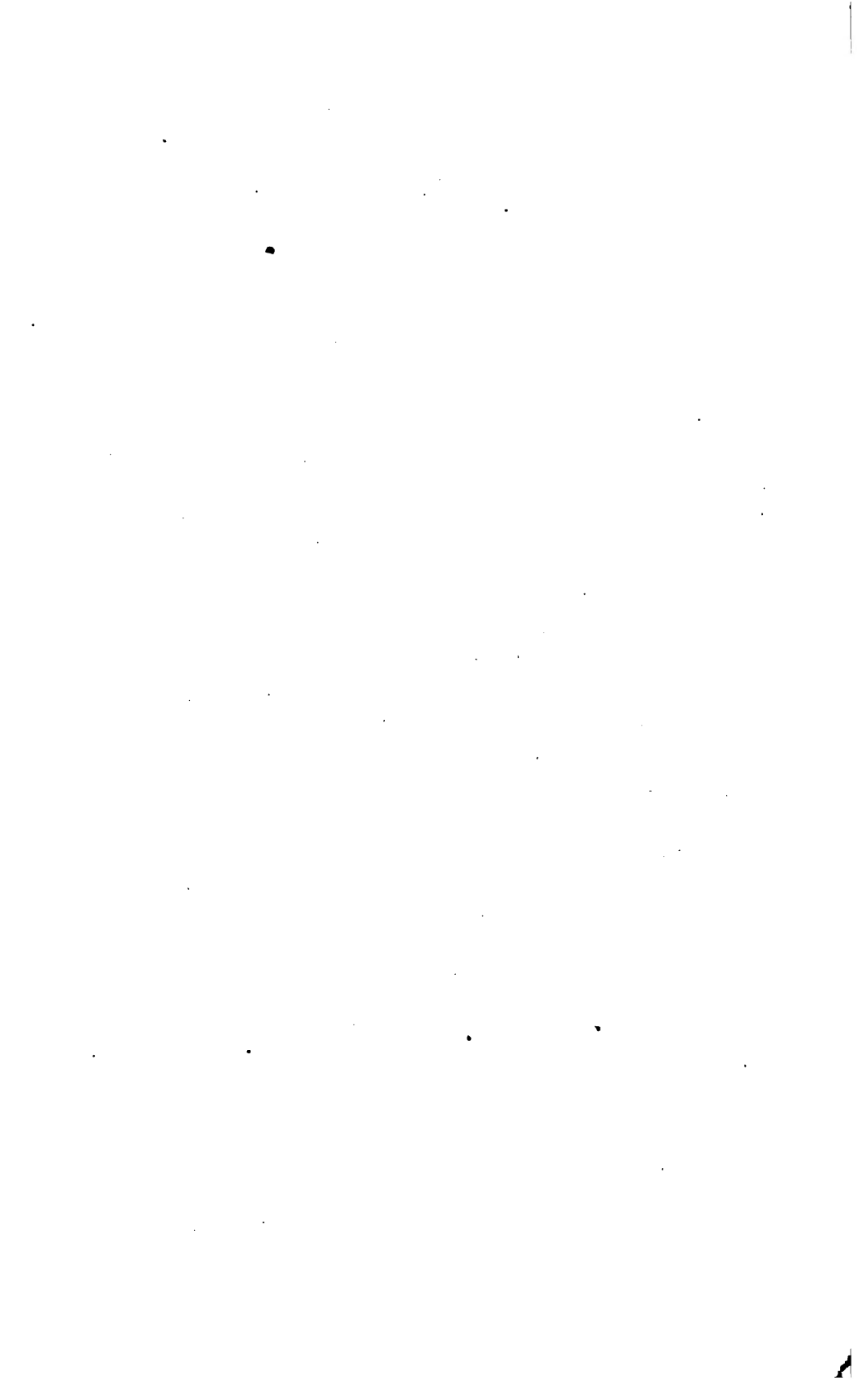
GRAY'S Glycerine TONIC Comp.

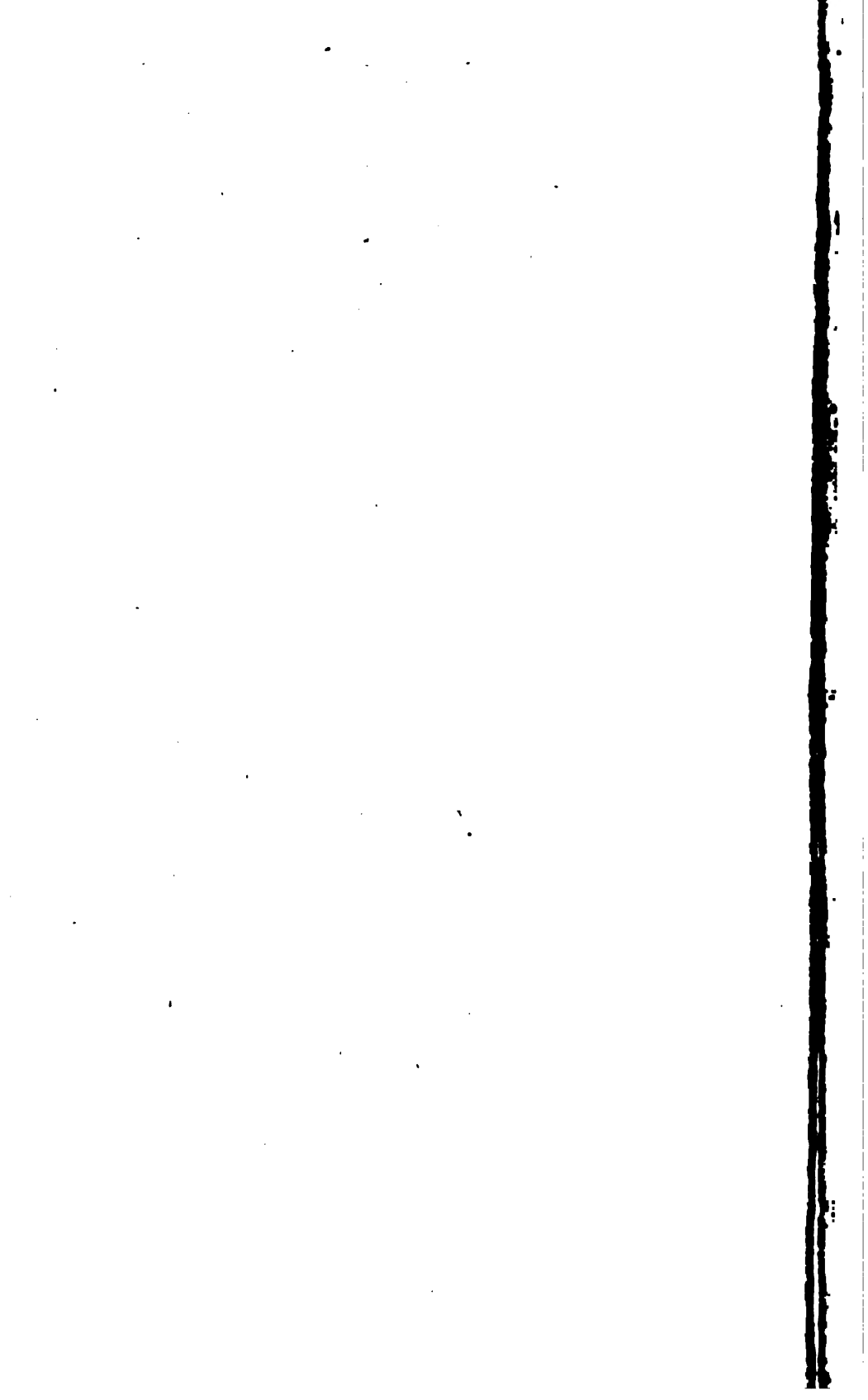
This, authorities state, will,
if persistently followed, overcome
any case of general debility, nervous
exhaustion or neurasthenia.

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